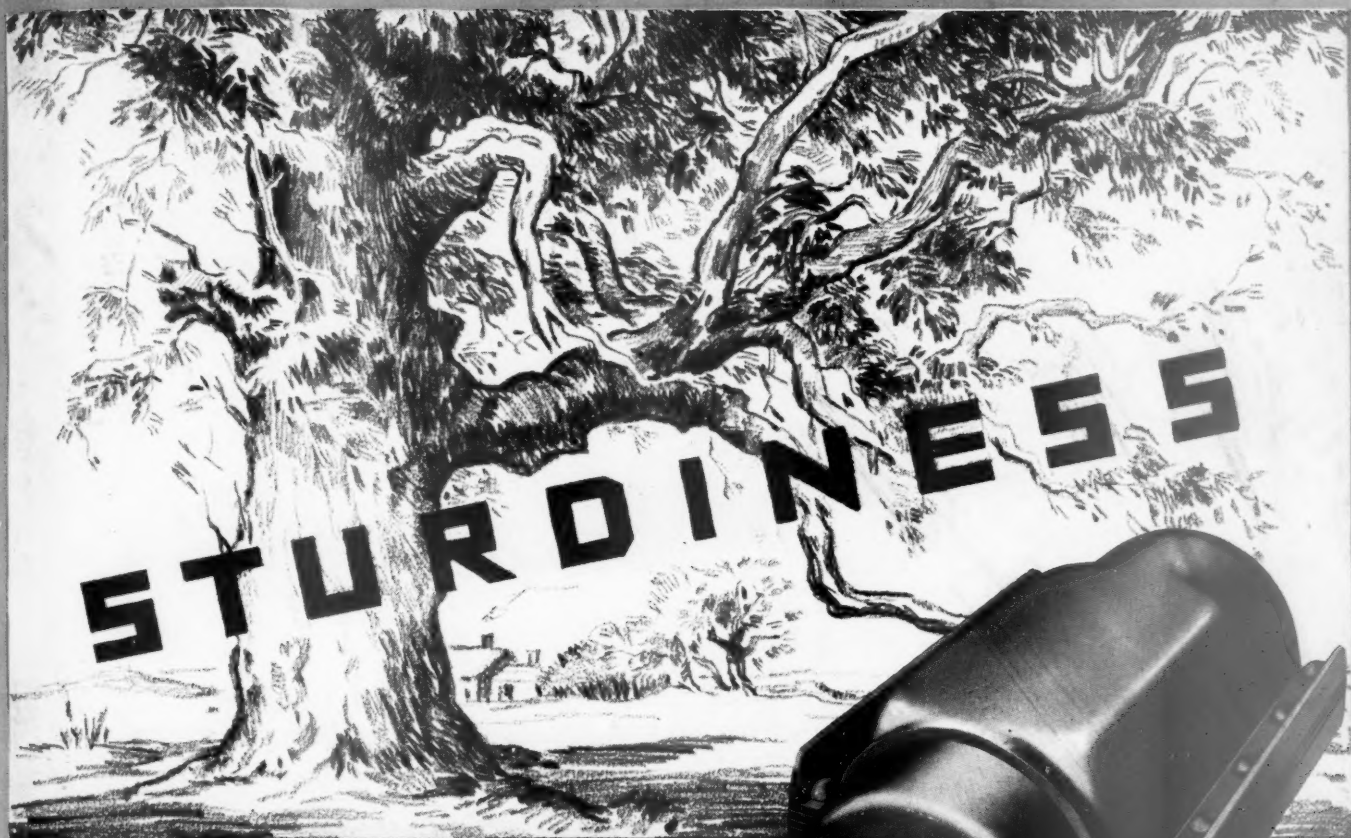


AUGUST 24, 1935

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Railway Age

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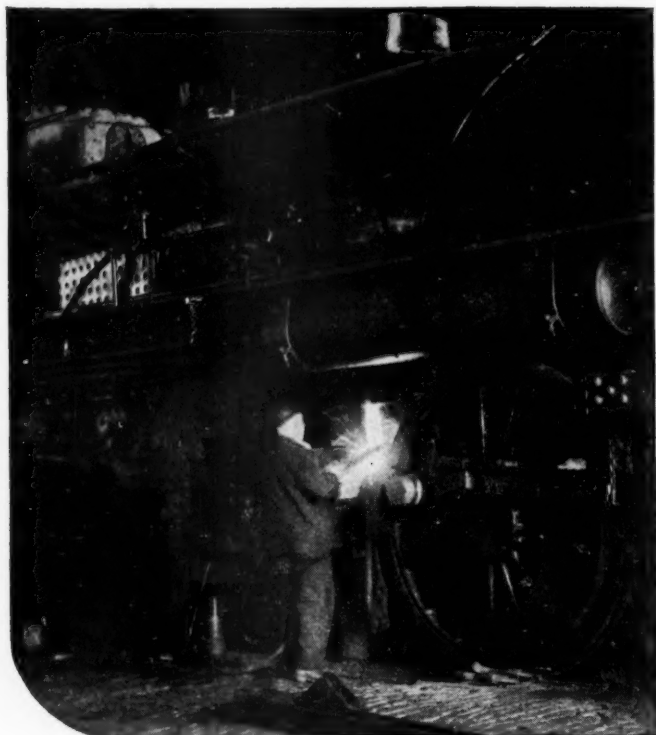
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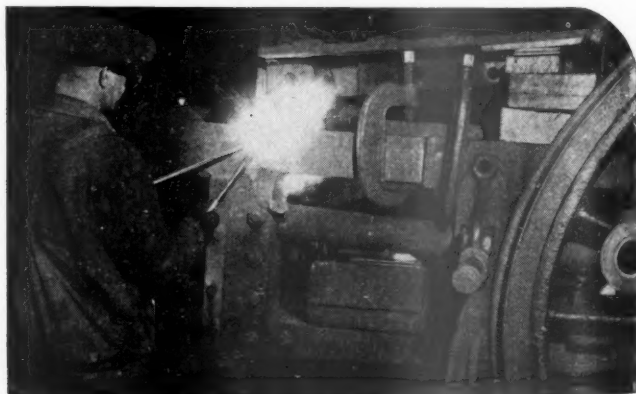
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Published every Saturday by the
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Street, New York, N. Y., and 105
West Adams Street, Chicago, Ill.

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CLEVELAND
Terminal Tower

WASHINGTON
832 National Press Building

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The Railway Age is a member of
the Associated Business Papers (A.
B. P.) and of the Audit Bureau of
Circulations (A. B. C.).

Subscriptions, including 52 regular
weekly issues, payable in advance
and postage free; United States and
possessions, 1 year \$6.00, 2 years
\$10.00; Canada, including duty, 1
year \$8.00, 2 years \$14.00; foreign
countries, 1 year \$8.00, 2 years
\$14.00.

Single copies, 25 cents each.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette
and the Railway Age-Gazette. Name registered U. S. Patent Office

Vol. 99

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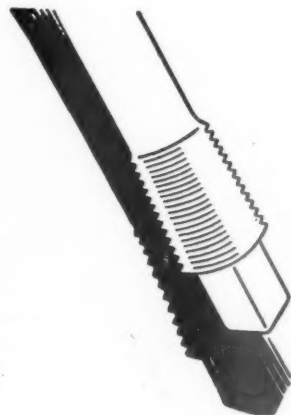


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The Great, Vital, Neglected Problem of Production

Ask any group of persons what is the greatest economic problem with which the people of the United States are confronted, and you will likely get as many answers as there are persons. Probably none of them will be right. The problems stated probably will all be factors, but merely factors, in the principal problem. Tell them that the great, vital problem is that of *increasing production*, and you will get widely varying answers from some, and only puzzled stares from others.

The writer of a recent book which does emphasize this vital problem attributes the failure of almost everybody, including most politicians and business men, even to discuss it, much less attack it, to the economic illiteracy of which the American people often have been accused. Certainly the way our problems in the United States recently have been dealt with has afforded the best exhibition of economic illiteracy, and even imbecility, on a grand scale, ever witnessed in the history of the world. The depression has become like the weather, of which Mark Twain said that everybody talked about it but nobody did anything. Probably when this issue of the *Railway Age* appears Congress will have adjourned. It will have passed much legislation to "re-distribute" the national wealth and income. It will have considered hardly any to increase their production. In fact, almost every important measure that it will have passed will tend to restrict their production and thereby to make termination of the depression more difficult.

Railroad Retirement Acts and Production

An illustration of such legislation is the passage of the railroad "retirement" acts which, fortunately, will probably be held unconstitutional. In an editorial in its issue of August 17 the *Railway Age* demonstrated the dependence of railway purchases from manufacturers upon the amount of railway net operating income earned. These purchases are now running at an annual rate of \$1,000,000,000 a year less than in 1925-1929 because of a corresponding decline in net operating income. The cost of the retirement acts would be about \$60,000,000 the first year, and would increase to \$200,000,000 a year. By increasing operating expenses, they would tend to reduce net operating income and buying from manufacturers, the principal way in which the railways directly contribute to production. Apparently

those promoting and voting for them never thought about that, or did not care anything about it.

The policy in Washington has been, "billions for re-distribution, (and politics), but not one cent for increased production and recovery." Because of the government and business policies followed production has stagnated for two years. Railroad car loadings indicate that in the eight weeks from the middle of June to the middle of August total production in the United States in 1935 was 5 per cent less than in 1934 and 9 per cent less than in 1933. But almost nothing has been done in Washington during the last year even ostensibly to stimulate production. And, significantly enough, the subject is hardly being discussed even by most critics and opponents of the New Deal. We carefully scanned every page of the Sunday morning, August 18, issue of a great newspaper which is among the New Deal's bitterest foes. There were many columns of news and editorial comment critical of New Deal policies, but only two brief references to the need for increased production,—much about the politics of economics, but nothing about the economics of production and recovery. Ogden L. Mills was quoted as advocating "increased production by unshackling business energy." James A. Moffatt, retiring administrator of the Federal Housing Act, was quoted as saying that this act "will play a part of constantly increasing importance in achieving complete recovery." That was all. Nowhere was there evidence of recognition of the fact that *depression is reduced production*, and can be ended only by doing what is necessary to increase production. The *Railway Age* offers no apology for again discussing this greatest and most vital of our economic problems, when the evidence of general ignorance and disregard of it is so overwhelming.

The Cause of Depressions

"Industrial Depressions," by George H. Hull, is probably the best book on this subject ever published. The first edition was issued in 1911 and the second in 1926. It is significant and important now partly because its author's reasoning and conclusions were uninfluenced by the present greatest of all depressions. In his first edition he reviewed all the depressions in all the industrial countries of the world from 1803 to 1908 and their alleged principal causes. Among the

alleged principal causes he dismissed as illusory, because so many depressions had not been preceded by them, were financial panics, over-production, insufficient currency and turning of circulating capital into fixed capital. He arrived at the conclusion that the principal and essential cause of every depression, because it was the only important cause by which every depression had been preceded and characterized, was what he called "decline of construction." By this he meant exactly the same thing that is meant now by decline in the production of "durable goods". He presented elaborate statistical data from every industrial country in the world to show that in every instance the decline in the production of durable goods had been due to increases in their cost that had made investment in them temporarily unprofitable.

We quote the following from the edition of Mr. Hull's book published in 1911:

"The actual responsibility for each of the checks to the industries, which come from high prices, rests solely with the individual who 'holds the purse-strings'. * * * The predominating motive which stimulates man's acts in originating, operating, and enlarging the constructive enterprises is the *instinctive desire for gain*. * * * Prosperity does not depend upon the producer's ability to manufacture and his desire to sell, *but upon his ability and willingness to sell at a price that will induce the purse-string holders to purchase*. * * * The industries are an aggregation of individual business acts performed by men who have in view the problem of adding to their wealth. They move cautiously as long as the future looks uncertain, but when the business outlook is clear, and they see prospects of making construction investments which promise steady profits as well as security to their capital, they act promptly and with vigor. * * * The motive which underlies the industries of a nation is a plain, simple, uncomplicated business consideration. * * * It stimulates production at one period and retards production at another, with equal consistency. *It is just as certainly in existence and in full action when it quietly and relentlessly reduces industrial production below the normal, as it is when all the power, money, and energy of the country are driving it above the normal.*"

Durable Goods Situation and Railroad Buying

It is easy to imagine what the comments of the author who wrote this twenty-five years ago would be upon the present situation and all the government "reform" and business policies that have been adopted ostensibly to promote recovery. Stuart Chase is a radical who believes capitalism has collapsed and that the only way out is a socialist or fascist planned economy. Colonel Leonard P. Ayres is an orthodox economist who believes in capitalism. In an article in Harper's magazine for August, however, Mr. Chase gave some data regarding declines in the prices and production of consumers' and durable goods which were quite similar to data given by Col. Ayres in the August 15 bulletin of the Cleveland Trust Company. Colonel Ayres' data indicated that from 1929 to 1933 the prices of consumers' goods declined about 40 per cent and their production only about 15 per cent, while the prices of durable goods declined only about 15 per cent and their production almost 80 per cent. Mr. Chase attributed the comparative inflexibility of the prices of durable goods to reduction of competition among their producers. Colonel Ayres said, "If anyone could devise a means to make durable goods follow the pattern of consumers' goods in volume and prices

during depressions, he would have found the solution of the depression problem, and he could tell us how future periods of seriously hard times could be avoided. It is the most important problem in the world."

Apply the foregoing to the problem of increasing railway buying. The buyer must have both ability and disposition to buy. The railways can directly contribute toward increased production only by increasing their buying. Their ability to buy from manufacturers is demonstrably dependent upon their net operating income. The physical amount of manufactured products they can buy depends upon the amount of money they have to spend and the prices they are charged. Increase in their operating expenses, unaccompanied by increase of their gross earnings, reduces their net operating income and thereby, the amount of money they have with which to buy. Increase in the prices they must pay reduces their incentive to buy and also the physical quantity of goods they can buy with a given amount of money. Their ability to buy, and thereby contribute to increased production, has, therefore, been reduced both by the advances in their own wages, and by the increases in the prices they must pay for fuel, materials and equipment. These increases in the prices they must pay have, in turn, been largely caused by advances of wages in the fuel producing and manufacturing industries due to NRA.

"Confidence"—In What?

But the principal reason why the net operating income of the railways is so inadequate as to have reduced their buying from manufacturers at an annual rate of \$1,000,000,000 is that their freight traffic continues to be 40 per cent smaller than in 1929. This is due to curtailed production in industry in general, and especially in the durable goods industries, including those from which the railways themselves buy. To what is this continuing curtailment of production due? It is due to that "instinctive desire for gain" which, as Mr. Hull said, is in as "full action when it quietly and relentlessly reduces industrial production below the normal, as it is when all the power, money, and energy of the country are driving it above the normal." Continuance of the depression is often attributed to "lack of confidence," and it is said it will be terminated when "confidence" revives. Confidence in what? "In all these government investigations," said Mr. Hull in writing twenty-five years ago, although it sounds as if it had just been written today, "no one has touched upon the simple fact that the great constructive interest of the country is not only the branch of industry of the greatest volume and importance, but that *it is the only branch in which the great expansion and contraction in volume can possibly occur, and that construction investments are chiefly entered into for revenue and profit.*"

That is the answer. *It is lack of confidence in future profits* which causes the decline of investment in durable goods, and causes and prolongs depressions. *It is restoration of confidence in profits from invest-*

ment in durable goods that causes increased buying of them, ends depressions and restores prosperity and employment. Under a capitalistic system the only kind of business "confidence" that is worth a tinker's dam for maintaining or restoring prosperity and employment is confidence in profits.

Why Depression Continues

This vital fact, which was demonstrated so clearly and conclusively by Mr. Hull twenty-five years ago, has been virtually ignored throughout the present depression by those who have been loudest and most active in ostensible efforts to promote recovery. The increase of actual and prospective profits has been legislated against in almost every ostensible "reform" or "recovery" measure that has been passed by Congress, excepting as regards agriculture. Wages and prices in transportation and industry have been advanced when the obvious and certain effects would be to retard the buying of durable goods both by increasing their cost and by reducing the profits of the industries that must be depended upon to buy them.

This is the real cause of the continuance of the depression, although mighty few persons of even supposed intelligence seem to know it. There is no way out excepting to increase the profits and prospective profits of the potential buyers of durable goods. Are the production costs and prices of durable goods too high? NRA has been abolished, and it is now within the power of the industrial leaders of the country not only to answer that question, but, if costs and prices are too high, to take the steps necessary to reduce them. And how about buying power? Excepting automobiles, five-sixths of all durable goods are bought by industry itself, including the railroads. What, then, is going to be done to increase the buying power of industries, especially that of the railroads? The power of the railroads to buy, and to thereby contribute toward increased production, can be increased only by enlarging their gross earnings, or by curtailing their wages and other operating expenses, or by both. The initiative in regard to their wages lies with their managements. Congress has passed the railroad retirements bills. If, before this editorial is published, it shall also have passed the Guffey coal bill, which, fortunately, is probably also unconstitutional, it will have done about all it can at this session to curtail railway buying power, and thereby restrict production and prolong the depression.

A B C of Depression and Prosperity

The A B C of depression is as follows: Investment in durable goods declines because the cost of them become so high as to destroy confidence in ability to derive profits from further investment in them. Production and employment in the durable goods industries then decline. In this depression they declined more than 75 per cent. Decline of production in the durable goods industries causes decline of business and employment in the service industries which provided materials, power

and transportation for the durable goods industries. The railroads are the largest service industry. Their freight business declined 45 per cent in 1933 as compared with 1929, and thus far in 1935 has been 42 per cent less than in 1929; and employment on them has declined proportionately. Decline of business in the durable goods and service industries is almost entirely responsible for the fact that about 10,000,000 persons are still out of work, and for most of the 20,000,000 that are on relief. Because these millions are needy the government is spending billions for relief. By the sale of its bonds to raise these billions it is taking out of the market capital which would be invested in durable goods, and would thereby give employment in the production of wealth and income, if conditions were such that persons owning capital could feel assured that they would get a reasonable return upon the investment. The A B C of prosperity is the exact reverse of the A B C of depression. Create opportunity and incentive for investment in durable goods by creating conditions which will restore confidence in profits from investment, and prosperity and employment will be rapidly restored. There is no other way.

The problem is not merely that of government, although government is doing about everything it possibly can to prevent its solution. It is also the problem of leadership in transportation, industry, commerce and finance; and most leaders in these fields are doing mighty little to solve it. They are doing mighty little to effect the readjustments in wages and prices necessary to create power to buy durable goods and confidence that profits will be derived from investing in them. The general trend of business is now upward. Its upward trend can be effectively stimulated now only by the adoption of business policies which will nullify the retarding influence of present government policies.

What, then, is business going to do to stimulate production? It can do very much if business men will recognize and face the fact that the great, vital economic problem is that of increasing production and act accordingly in future, and especially during the national political campaign next year.

Bargains in Equipment Financing

Last week the R.F.C. sold \$15,282,000 of 4 per cent equipment trust certificates of the Pennsylvania to New York investment houses at 107.6, which issues the financiers immediately offered to the public at prices to yield about 2½ per cent on the average. These certificates represented approximately 94 per cent of the total cost of the equipment. This, of course, indicates that financiers are now willing to advance practically the entire purchase price of new equipment to solvent railroads at an interest charge considerably under 4 per cent; and that the investing public will absorb the issues at rates sufficiently lower even than

this to afford the financing houses a satisfactory margin of profit.

Furthermore, the Chesapeake & Ohio last week asked authority of the Interstate Commerce Commission to issue \$9,645,000 of 3 per cent equipment trust certificates, representing approximately 80 per cent of the purchase prices of the equipment to be acquired. While no arrangement for the sale of these certificates was announced, it was indicated that the company expected bids at not less than par. The terms under which railroads which have credit—and there are, fortunately, still a considerable number of companies in that category—can finance their equipment requirements are thus unprecedentedly favorable. But acquisition of new equipment even by companies whose financial position is not all that could be desired is not, it would appear, precluded. Chairman Jesse Jones of the Reconstruction Finance Corporation last week disclosed arrangements made with one equipment manufacturer for R.F.C. financing of up to 80 per cent of the cost of new equipment, which would enable the manufacturer to offer equipment on a rental basis, thus obviating entirely any issuance of securities by the railways.

The dearth of equipment buying, even to maintain replacements in a plant used to little more than half its normal intensity, has been so prolonged that a revival in buying cannot be much longer delayed. The fact that financing can be arranged on such favorable terms should hasten the "break," which sooner or later must come if the railroad industry is not to become a museum. What to use for money has long been the problem of railroad managements when they have seen how new locomotives or other equipment could earn a handsome return. That problem is now rapidly dissolving. Railroad managements who will recognize that fact and act courageously upon it, will not only get bargain rates upon expenditures which they are going to have to make very soon in any event, but they will also make possible the industrial revival which is the only answer to the railways' perennial problem, an increase in traffic.

A Shortage of Ties?

Are we facing a shortage of crossties? This question is raised by a report prepared by the Section of Purchases of the Federal Co-ordinator's staff and made public by the Co-ordinator on June 27. In it attention is directed to "the serious depletion of our timber resources" and the "probability that steps may be taken in the near future that will result in reducing the supply and increasing the cost of tie timber." These statements are advanced to support greater activity in the development of ties of substitute materials.

The question of crosstie supply is not new. It has been before railway officers for half a century. It was particularly active 25 years ago when numerous rail-

way officers, who feared that we were then on the verge of an acute shortage of ties, were encouraging the development of substitutes of steel, concrete and other materials, and other officers were investigating the timber resources of Central and South America and countries as far removed as Japan and China.

The importance of this subject to the railways arises from the fact that they normally spend more for crossties than for any other material, with the single exception of fuel. The protection of an adequate future supply of ties looms large, therefore, in the railway picture. A couple of decades ago the railways required more than 120,000,000 ties annually. They were largely untreated. They went into replacements and new tracks alike. Prior to the abnormally restricted renewals of the last five depression years, these requirements had dropped to 75,000,000 ties, reflecting primarily the effect of preservative treatment and its resulting increase in tie life, but in part also the termination of the vast construction activities of past years.

Both of these effects are permanent. Furthermore, the first is still cumulative, for with the increasing development of devices to protect the timber against mechanical destruction and the further perfection of treating processes, it is to be expected that the average life of crossties will be increased from the 18 to 20 years now attained by some roads to the 30 years or more now secured by railways in Europe, which still rely upon the wooden crosstie as their principal track support, even though their timber resources are far more seriously depleted than ours will be for many decades. With the measures already in effect in this country, the normal requirements of the future will not exceed 60,000,000 to 65,000,000 ties, and with the further measures that will be initiated as rising costs make them justifiable, the requirements may fall to 50,000,000 ties.

With this reduction of approximately half in tie requirements already effected during the last 20 years, concern over the future supply has largely disappeared. The production of this number of ties annually still constitutes a drain on our timber supply of no mean proportions. In considering this fact, however, it should be borne in mind that in only small degree does this production come from what would otherwise be commercial timber operations. It comes primarily from timber that is not of a size or otherwise suited for commercial logging. Furthermore, much of the tie production of today is coming from cut-over areas whose commercial possibilities were exhausted years ago. So far as substitute ties are concerned, many designs have been devised and tested in tracks, one with installations aggregating more than a million ties. However, none has yet demonstrated sufficient superiority in life, annual cost, serviceability, etc., to make it a serious competitor of the wooden crosstie.

It is to be regretted that the Co-ordinator's staff has taken such an academic approach to a problem that is as important as this one, and one to which railway officers have given so much attention for so many years.



The Old Viaduct on the Left Had Been in Service for 46 Years

Constructs High Steel Viaduct With Company Forces

Replacement of 46-year old structure on Illinois Central in
Kentucky made possible by federal loan

COMPANY forces performed all work required in the construction of a steel viaduct across Big Clifty creek on the Illinois Central's Louisville division to replace an old structure that had been in service for 46 years. This work included not only the construction of the masonry substructure, the erection of the superstructure and the dismantling of the old viaduct, but also the placing of 31,500 cu. yd. of filling material in the approach embankments, contract work having been prohibited under the provisions of a loan of \$167,000

granted by the Public Works Administration for the financing of this improvement.

The new structure is substantially of the same length as the old one, a little less than 900 ft., and carries the track across the rocky defile occupied by the creek, at an elevation of about 128 ft. above the bed of the stream. The old bridge, which was on a curve of 2-deg., was constructed of wrought iron on stone masonry pedestals and consisted of 30-ft. tower spans, with 30-ft. clear spans between them except for a 100-ft. pin-connected deck truss span over the deepest part of the ravine. The 30-ft. spans consisted of riveted latticed girders.

The structure had been subjected to some reinforcement throughout its long life, the principal feature of which was the introduction of a middle truss in the 100 ft. span and the stiffening up of the adjacent towers by substituting stiff sway braces for the rods originally provided. The impracticability of further strengthening required the replacement of the structure in spite of its excellent condition, which has led to the decision to salvage a number of the lattice girders and some of the tower columns for use in reconstructing highway overcrossings.

New Structure on Offset Location

To avoid interference with the old structure, the new viaduct was built on an offset location that embraces a tangent for the length of the new bridge, with 3-deg. curves at each end that connect into the original 2-deg. curves. The maximum deviation from the old line is about 80 ft. The new structure is of the conventional



The New Viaduct (on the Left) Was Placed on an Offset Location to Clear the Old Structure

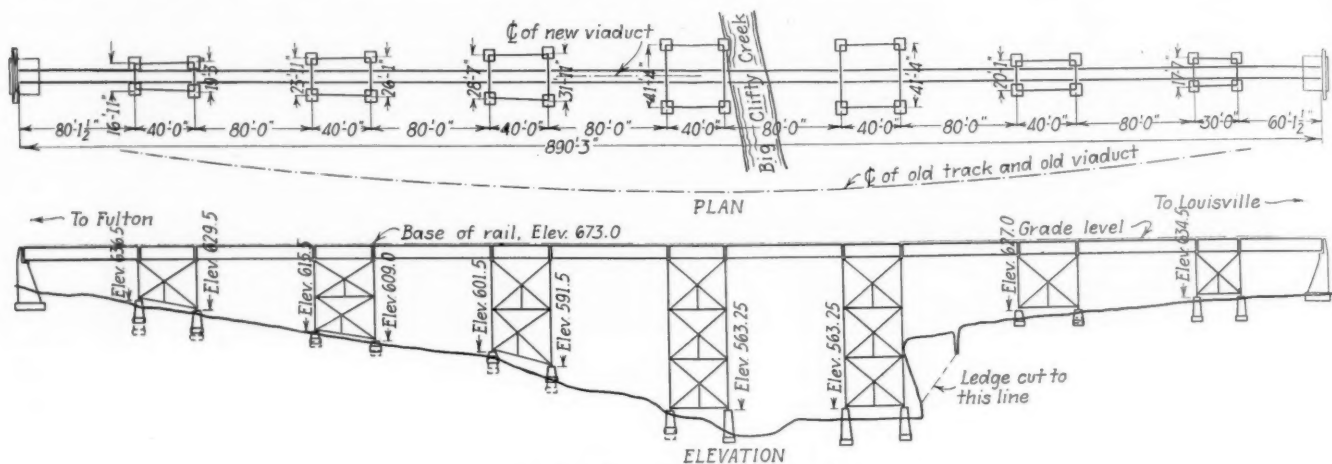
tower and girder-span construction, with seven towers and eight clear spans, and except for one 60-ft. clear span and one 30-ft. tower span at the north end, the tower spans are 40 ft. long, and the clear spans 80 ft. The highest tower measures 100 ft. from top of pedestals to top of columns.

The new viaduct has an open deck of creosoted wood, with 8-in. by 10-in. ties spaced 12 in. center to center, except that every sixth tie is an 8-in. by 12-in. stick,

removed from the site of the tower by teams. This was done piecemeal with small charges of explosives to guard against injury to the old viaduct and to insure that the rock was broken small enough for convenience in handling.

Steel Erection

Most of the steel was erected with a bridge derrick car, using a 97-ft. boom for the reach of 80 ft. in setting



Plan and Elevation of the New Viaduct

dapped to 10 in. to anchor the track laterally. The guard timbers are 6-in. by 8-in., dapped 1 in. over the ties. All framing was done in the field, dapped surfaces being swabbed with a mixture of creosote and pitch. The rails are 112-lb. RE section.

The ravine occupied by Big Clifty creek is a rocky gorge, with exposed ledges 50 ft. or more in height, but covered farther up the sides with varying depths of soil, and broken and disintegrated rock, but it was possible to place all of the pedestals as well as the two abutments on solid rock without excessive excavation, although at the site of one pedestal it was necessary to excavate through 15 ft. of broken rock to reach solid rock. The pedestals are 5 ft. square at the top and have batters of 1 in. per ft. on the sides, except where it was necessary to increase the batter to obtain minimum bottom dimensions of 6 ft. 6 in. The pedestals vary from 7 ft. 6 in., to 28 ft. 4 1/2 in. in height. The abutments are of the buried type with short cantilevered wings.

Substructure Work

The substructure work was done with a gang of 45 men, including a foreman, 5 carpenters and 4 carpenter helpers. The concrete was mixed in a small portable mixer that was set up at each abutment and tower base in turn, and except at the abutments it was possible to place the mixer so that the concrete could be dumped directly into the forms. The materials were dumped from cars on the old viaduct and wheeled to the mixer. At the north abutment the concrete was delivered in side-dump cars moved over a narrow gage track on a trestle, while at the south abutment it was hoisted for dumping into the forms by means of a caterpillar-mounted crane. This crane was used also for some of the footing excavation work, but most of this was necessarily done by manual labor. Inco cement was used in the concrete for the abutments so that they could develop the strength necessary to permit the immediate placing of the embankments against them.

To avoid hazard to one of the towers, which had to be located close to a rock ledge 52 ft. high, 2,467 cu. yd. of rock in an overhanging ledge was shot down and

up the "near" bent of the next tower, but requiring a 55-ft. boom to handle the girders, the longest of which weighed 24 tons. Because of the repeated changes in boom thus required, it would have been more economical to erect the towers in advance from the ground, but owing to the irregular contour of the ground in the ravine, it was practical to do this only for towers 1, 2 and 7 and the lower section of tower 3, for which purpose a stiff-leg derrick was employed.

In the erection procedure, the completion of each tower with its girder span was followed by the erection of the "near" bent of the next tower, after which the girders of the 80-ft. clear span had to be set so that the derrick car could move out far enough to erect the "far" bent.

Under this plan it was necessary for the bent to carry the weight of the girder span and the derrick car,



Where the Ledge Was Shot Away to Avoid the Hazard of Falling Rock

without the stiffening in the longitudinal direction afforded by the tower. To compensate for this, these bents were braced in the longitudinal direction by means of cables tightened with steamboat ratchets until the rest of the tower could be erected.

The tower steel was lowered to the ground from the old viaduct and moved to the tower sites on dollies that traveled over skidways consisting of wooden bridge stringers laid flat in pairs. The girders had to be "walked" out on the bridge by the derrick car. A second derrick car was assigned to the job so that two could be used in unloading the girders from cars, the auxiliary derrick being used also in handling miscellaneous material.

Two steam-driven air compressors and a gasoline engine-driven compressor supplied power for riveting and for the operation of pneumatic drills and saws employed in installing the timber deck.

The Illinois Central has long followed the practice of carrying on much of its bridge work with its own forces, with the result that the requirement that "company" forces be employed in this case imposed no particular problems with respect to either organization or equipment. It was necessary to rent a bridge derrick car for use on this project because the active prosecution of two other large bridge projects on the road at the same

time made it impossible to assign more than one "company" bridge derrick to the Big Clifty job.

Grading Equipment Rented

However, like most other roads, the Illinois Central has generally contracted grading work, so the requirement imposed by the terms of the loan that the grading be done by direct labor imposed the necessity of renting all the equipment and animals needed. The material for the two bridge approaches was obtained from borrow pits located within $\frac{1}{4}$ mile of the two embankments. An excavating grader was employed to load eight crawler wagons hauled by a crawler tractor and eight wagons hauled by three-mule teams.

Construction was started on April 17, 1934, steel erection was started on September 25, and the bridge was turned over to traffic on December 28. The work on the bridge required 2,761 cu. yd. of excavation, 1,447 cu. yd. of concrete, 33,212 lb. of reinforcing steel and 972 tons of structural steel. The bridge was designed and constructed under the direction of C. C. Westfall, engineer of bridges, and under the general supervision of A. F. Blaess, chief engineer. R. E. Downard was resident engineer, Guy Clements was foreman on the substructure, and L. Welch was bridge foreman in charge of the steel erection.

Auto-Stop Installed on C. & N. W.

A SYSTEM of barriers, known as the Auto-stop, which rise in the highway approaching the tracks, have been installed at a crossing of a single-track main line of the Chicago & North Western in Des Moines, Iowa. The crossing is located on tangent level track four miles from the station where train speeds range from 30 m.p.h. for freight trains to 50 m.p.h. for passenger trains.

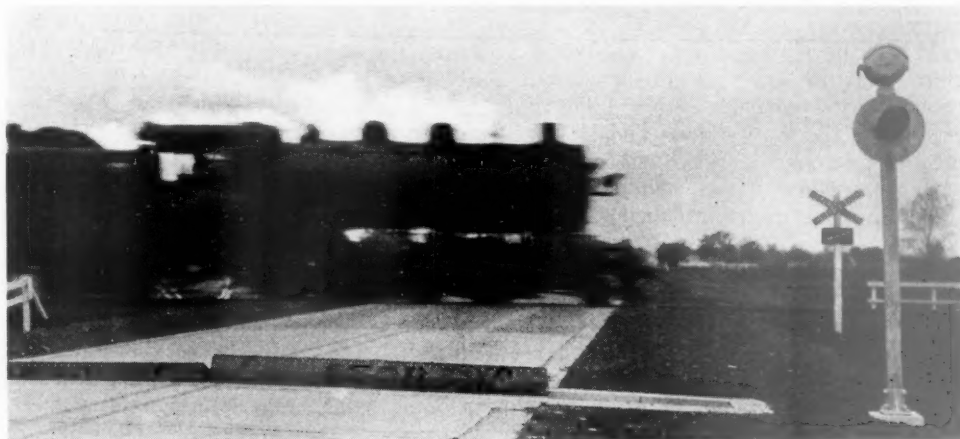
The Auto-stop consists of two barriers, located in the highway 75 ft. on each side of the track. The barriers raise, when a train is approaching, to prevent the movement of highway vehicles over the tracks. A light, covered by an 8-in. red lens, is placed on the face and near both ends of each of the sections. In the center of a section, the word STOP is cut out in outline $7\frac{1}{2}$ in. high so that light shines through around the word; in addition, the letters are outlined with reflector buttons. On each side of the stop sign the symbol RXR is lettered

and outlined with reflector buttons, the letters being $4\frac{3}{8}$ in. high. Also, a row of large reflector buttons, each about $\frac{3}{4}$ in. in diameter extends along the top edge and down the ends of the face of the barrier. From the time the barrier starts to rise until it returns to the normal position again, the two lamps at both ends of each of the two sections flash and the word "Stop" is illuminated. In addition to the signals and signs of the barrier itself, a red boulevard-type "stop" signal, normally extinguished, is mounted on a pole at the right of the highway approaching the track, at a point opposite each barrier, while a loud-toned crossing bell is mounted above each of the signals.

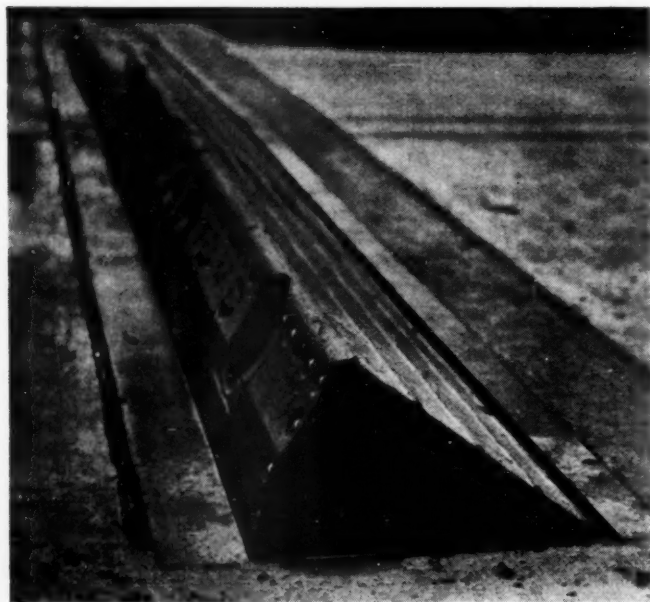
Effect of Barrier In Stopping Vehicles

The functioning of the barrier in stopping vehicles, as effected by the face of the barrier, has been modified from the previous design described in the *Railway Age*

The Barrier Rises to Full Height 10 Seconds Before the Arrival of a Train at the Crossing



of October 6, 1934. Whereas the earlier model presented a concave surface as an absolute obstruction to further forward movement of a vehicle, the barrier installed on the C. & N. W. is designed with a surface convex on the lower portion and slightly concave on the upper position, the effect of which is to throw a vehicle up, thus dissipating a considerable amount of the momentum. The effect on passengers in the front seat of a car striking the barrier is to force them back and down



End View Showing Contour of Face of the Barrier

against the cushions, rather than to throw them forward. The barrier is claimed to be so constructed that it will withstand an impact of 3,000,000 lb. without damage. A 15-ton truck, traveling at 45 m.p.h. is said to exert a force of 2,000,000 lb. when striking one of the barriers.

Cycle of Operations

When a train, traveling at 50 m.p.h. enters an approach-control track circuit, the boulevard-type red "stop" signals are illuminated and the bells start ringing. At the end of 5 seconds the barriers start to rise, requiring about 2 seconds to rise to the warning height of 4 in. and remaining in this position 10 seconds. They then rise to a full height of 9½ in., this requiring about 2 seconds more. These operations require about 19 seconds, bringing the barrier to its final position about 10 seconds before the arrival of a 50 m.p.h. train at the crossing, this period being extended for a slower train.

When the rear of a train clears the crossing, the barrier starts to lower, requiring about four seconds to return to its normal position. The light in the barrier, as well as the stop signals and bells continue to operate until the barrier is returned to its final position, level with the surface of the highway, at which time the stop signal lights are extinguished and the bells cease ringing.

The barrier itself—the part which rises above the level of the highway—is constructed in two sections 10 ft. long, each of which extends half way across the highway. The top plate, normally level with the surface of the highway, and the face of the barrier, are formed from 7/8-in. steel plate, the cross members, end plates, braces and bearing lugs being welded in place.

When in the warning or hesitation position, at the four-inch height, a vehicle striking the barrier from either direction of approach forces it down to the level of the pavement and passes on, the barrier again returning to this position. When in the fully raised position, 9½ in. high, the section on the right side of the pavement is locked. However, the section on the left, which rises to a full height of only 6 in., is not locked in the raised position, so that if the barriers are raised while a vehicle is on the track side, the driver is not trapped on the tracks, for, as the car is driven up the slanting slope of the left section from the track side, the barrier is depressed to the pavement and then rises again when the car passes.

Operating Mechanism

The driving mechanism, located in a pit at one end of each barrier, includes a ¼-hp. 32-volt d-c. General Electric motor, which operates a 2-in. shaft which extends the 20-ft. length of the barrier, being supported in 8 bearings. At points equally spaced under each of the two barrier section, there are cranks in the main shaft from which link arms or connecting rods, 10 in. long, extend and are attached to bearings on the under side of the top plate of the barrier. Each link arm is slotted on the crank shaft bearing, with the pin normally at the lower end of the slot, so that this drive mechanism operates to pull the barrier down from the raised position to the normal position but does not normally exert force to raise the barrier.

The barrier is raised by force of gravity, using weights which are connected through cranks and link connections to the underside of the barrier, and the drive shaft merely follows this operation. By means of this arrangement, the barrier can be pushed down when in the warning position or when rising to the full height by a car striking it from the track side. Although the motor is not used to raise the barrier normally, it must turn the main shaft to permit the barrier to be raised by the weights.

This line of the C. & N. W. is equipped with automatic block signals, and the track circuits of this system were rearranged also to control the crossing protection automatically. In addition to the approach control track circuits, a separate track circuit extends over the crossing so that the barrier does not start to lower until the rear of a train clears the crossing.

The Auto-stop equipment for this installation was manufactured by the Evans Products Company, Detroit, Mich., and installed in the roadway by the Iowa Rail & Highway Safety Appliance Corp. The signaling control apparatus was furnished by the General Railway Signal Company and was installed by the railroad signal department forces. The installation is being maintained under the supervision of the signal department of the Chicago & North Western. This installation was officially placed in service on April 22, with the approval of the City of Des Moines, and the Highway Department and the Railroad Commission of the State of Iowa.

* * *

RAIL-HIGHWAY co-ordination in this country offers some problems, but hardly to be compared with those on the South Manchurian Railway, which operates a number of feeder bus lines. Only 30 miles from Mukden recently, 350 bandits attacked one of the S. M. R. motor coaches. They were driven off, after heavy casualties on both sides, by the convoy of 36 men accompanying the bus, plus reinforcements hurriedly dispatched to the scene. Incidentally, a convoy of 36 men must rather add to the cost per bus mile.

Regulators Should Stress Economy*

Nothing should be done that will increase costs of
railway operation unnecessarily

By Ralph Budd

President, Chicago, Burlington & Quincy

THE knack of successful railroading today is to combine speed, safety and economy and while doing so not to lose sight of the importance of economy in our attainments of speed and safety. The railways may increase efficiency by eliminating all the work possible and by doing the work that cannot be avoided in the most efficient manner. The railways may not be able to cut down hills and revise lines, as formerly, but work can be avoided by the use of stronger or lighter materials and better design to improve the ratio between the weight of freight cars and the loads they carry. Lighter cars can be built to handle heavier loads and economies can be effected by doing the necessary work with modern motive power which will make the most efficient use of the fuel or electricity consumed and cover more miles per day.

Using Opportunities

New light-weight box cars and passenger trains reduce ton-miles just as effectively as the leveling of gradients and the shortening of distances. Modern steam locomotives, through improved designs of fireboxes, effect more complete combustion, and by the use of superheaters and feedwater heaters make more economical use of the steam that is generated. They also have better lubrication and better bearings, which make possible longer runs, with less attention enroute. The new Diesel powered trains and switch engines and the latest electric locomotives are other examples of efficiency in motive power.

The use of these opportunities constitute an important forward step in railroading. It is a step which is entirely consistent with the desire for speed and safety, because in this class of motive power and equipment there are possibilities for speed without sacrifice of efficiency.

These improvements are essential in competition with trucks, which for short hauls and for certain commodities offer faster service than it is possible to give on railroads, especially with sizeable trains. It is an anomaly also that the ideas and materials which have been built into the newer types of motive power and equipment have originated, to a large extent, with the automotive industry, which has furnished the railroads such stiff competition. It is a foregone conclusion that most of the short-haul passenger traffic of the country will continue to go by highway. The things that are being done to attract back to the rails as much as possible of the medium distance travel will be quite successful. If even a small percentage of the highway travel could be retrieved by the railways, it would represent a substantial increase over what they now have.

The Railway Crisis

There is an acknowledged crisis in the affairs of our railways. It is not because of their failure to give good service. Railway service never before was so fast or

dependable as it is at present. The standards of safety, comfort and convenience of travel are unsurpassed. The crisis is financial and economic in character. It is due principally to the depression, but it is due also in large part to the injurious effects of political meddling. There are, no doubt, many thousands of people who have the kindest of feeling toward the railways, who would like to know what it is that the railways want in the way of help from the public because they realize the importance of restoring and preserving relative railroad prosperity. They realize that the railways must be sustained by the charges for freight and passenger services and that the greater the expenses are the higher the charges must be. Railway executives should be prepared to state much more definitely than they usually do, what the things are, specifically, that the railways want. This can be summed up very simply.

It would help more than anything else for legislators and regulators of railways to have in mind as being paramount in the public interest the truth expressed by some such slogan as "Do not do anything that will unnecessarily increase the cost of railway operation." The application of that simple and easily understood principle would prevent the enactment of such measures as the train limit bill, the full crew bill, the bill providing six hours as the basis for calculating a day's pay, the track inspection bill, etc.

Apply Principle to All Transport Proposals

The application of this principle would go further. It would result in applying to every public project which would create or encourage competitors of the railways the same test which is made when railways desire to build extensions, that is, whether the expenditure of such funds is economically sound, whether the charges for the use of the facilities to be created will be enough to carry the investment; in short, whether the creation of the proposed facilities constitutes a public convenience and necessity. If the facilities created will not carry themselves, they then become a burden on the balance of the transportation system of the country and upon other traffic. This test of economic justification should be applied both to river improvements and to highways. Presumably airways will have to be subsidized in order to foster their development as a matter of national defense.

The application of this simple principle would result in making a charge for the use of public highways by private carriers consistent with the value of such use, and also in regulating the competitors of the railways whether they be on highways, waterways or in the air. To permit the unregulated and non-compensatory use of public facilities amounts to subsidy and subsidizing the railways' competitors adds to the railways' burdens.

Co-ordination

The railroads should do everything possible to reduce the cost of transportation so long as it does not adversely

* From an address delivered before the American Association of Railroad Superintendents in Chicago on June 19.

affect the service. One of the obvious ways to reduce the cost of operation is by co-ordinating the facilities and operations of two or more roads. Another way is by merging or consolidating two or more lines. Both of these methods have been followed from the beginning of railroads 100 years ago and both of them have tended to improve rather than to impair the service. That the merging of railway lines was in the main extremely beneficial is evidenced by the accounts of early railroad journeys between such important places as New York and Boston, Mass., Albany, N. Y., Washington, D. C., or Philadelphia, Pa. In all of these instances where the trips were relatively short, it was formerly necessary to pass over several different lines and to change cars more than once. Today these trips are made as a matter of course in the same car and in a few hours. Another proof of the benefits of consolidation is that such large railway systems as the Pennsylvania, the New York Central, the Burlington and the Southern Pacific, for example, each consists of 200 or more merged corporations. No one would suggest that it would be in the public interest to break these railways up into their component parts.

Too Much Inter-Railroad Competition

About the turn of the century, it was felt that the merging of railways was going too far and too fast and that the monopolies which would be created would be contrary to the public interest. The time has come now when a resumption of the policy of merging railways may be highly desirable. The presence of so many other forms of transportation must be considered and also the adverse effect of too many railways competing with each other. The benefits which are sought will come rather from a lesser number of strong competitors than from a greater number of weaker roads, often further handicapped by the very burdens of excessive competition.

Many Joint Operations

Until about two years ago no law was ever passed preventing railways from effecting economies by using jointly one another's facilities and as a result, many such joint facility arrangements have been made. Some 24,000 miles of track in the United States are used jointly. There are 489 cases where the Burlington uses facilities of other roads and 492 cases where other roads use Burlington facilities. The making of additional arrangements of this character has practically been stopped by the labor provisions of the Emergency Railroad Transportation Act. Ironically, the purport of this law was to help the railways avoid unnecessary duplication and waste.

Consolidation would automatically bring about co-ordination and other economies of substantial character which are impossible to attain in other ways. It has been urged by some that the railway systems which are contemplated through consolidation would be too large for effective supervision. I do not agree with this view for several reasons. The best proof, it seems to me, is the very efficient management of our largest railroad, the Pennsylvania. I would rely upon the division superintendent for the success of the consolidated railway systems. My idea would be to have large divisions; probably 1,000 miles of line in the western United States would not be too much. Each division would be comprehensively organized and the superintendent would have authority over and be responsible for all phases of operation on his division. This would mean that he would have departmental assistants competent in normal circumstances to handle the different problems that would arise.

The superintendent would assign his routine work so completely that he could have opportunity to participate in the civic and commercial affairs of the various cities served, and to do some original thinking about the profession of transportation. Such a self-contained organization would function quite as effectively on a large system consisting of 20 or more divisions as it would where there are only 5 or 10.

There would be comparatively few larger systems. The contacts with regulatory bodies would be greatly simplified and the small number of railways which would have to deal with one another and with the states and communities would greatly increase efficiency, eliminate and reduce wasteful practices.

Personnel

Proper personnel is essential to railway economy. In order to maintain the necessary standard, the greatest care must be exercised in hiring new and especially the very young railway employees. Every person taken into the organization should have the capacity for advancement to the next higher position and the employing officer should be satisfied of the prospective employee's character and mental equipment as well as his physical fitness.

Most of the hiring is done by the divisional officers under the supervision of the superintendents. There is no more important function to be performed by any one in the entire organization.

Recruits in the service are chosen mostly for the lowest positions and, therefore, often, perhaps usually, are from among the friends and acquaintances of the youngest employees. This comes about quite naturally because such employees know of an actual or prospective vacancy and very properly recommend their associates. It is so difficult to discharge unsuitable employees that we are justified in being particularly careful in hiring. There is nothing to criticize in having applicants come from among the friends and relatives of employees, but there is everything to criticize and condemn about favoritism in giving employment to those who are not qualified because of friendship or still worse, because of relationship.

Importance of the Superintendent

The railway division is the essential unit in railroad-ing and as the officer in charge of that unit the division superintendent is the key man. Upon that position and the most efficient operation of that unit, the railways must depend chiefly for a favorable solution of their present financial difficulties.

Capital expenditures can be made along new and different lines but having the same underlying bases of economy that actuated the railways in past periods. An enlightened public consciousness is needed to prevent unwise legislation which will needlessly increase the cost of railroad operation. Instead of handicapping the railways, legislators should encourage them to do everything possible in the way of reducing expenses. It is truly in the public interest also to place other transportation agencies under appropriate regulation and to subject all public projects to the test of economic justification before making the expenditures, especially when such projects would create or encourage competitors with railways and finally, so much depends upon the personnel of the organization that the greatest care should be used in hiring new employees. Since matters of economy depend so largely upon the division superintendent, it is especially important that that officer be always aware of the necessities and of the opportunities which are available.

Why Electrical Transmission?

Reasons why it is so generally used for rail
motor cars and locomotives

By A. H. Candee

Diesel Electric Engineer, Westinghouse Electric & Manufacturing Company

THE majority of modern rail cars and locomotives powered by internal combustion engines use an electrical system for the transmission of power from the engines to the driving wheels. The question is often asked as to why this is so, in view of the apparent simplicity of the mechanical system. A review of some of the salient reasons may answer this question.

Automobiles and trucks have always been built with mechanical transmission—direct drive of the wheels through a clutch and variable ratio gearing. Early rail car developments shortly after the World War employed the same system of transmission, and as these cars were small and light such a method was adequate.

The demand for larger cars and for cars with trailer hauling capacity soon necessitated the use of larger engines and as their size increased difficulties arose in the maintenance of clutches, gearing, universal joints, splines and other details of such drive systems, resulting in high repair expense and low availability for service. The application of an electrical system of transmission improved these conditions with the result that the mechanical drive was rapidly superseded for the larger engine sizes. In fact, there have been no developments in mechanical transmission systems which approach the needs of the modern high-power car or locomotive.

The physical effort required for the operation of a clutch and for the shifting of gears in an automobile is relatively small. As the size of the units increases (for larger engines in more severe service) this labor increases materially. This effort is tiring to the operator and reduces his alertness and attention to his other duties. It has been proven conclusively in bus and truck operation that the majority of accidents occur after the operator has been on duty in excess of six or seven hours.

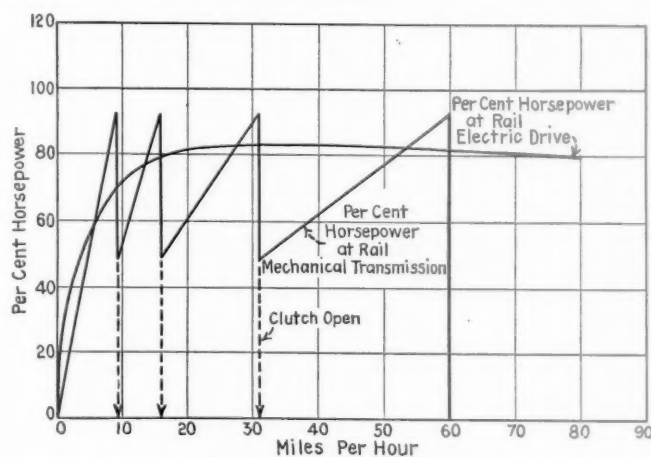
With an electrical system of transmission there is a minimum of labor involved in the operation of the car or locomotive, and the operator is able to perform his duties with greater efficiency and be much less fatigued at the end of his day's work than with a mechanical drive. This is an important consideration from a safety standpoint.

Greater Utility of Engine Power

The use of gearing for the transmission of power from an engine to the driving wheels of a rail vehicle involves a minimum of energy loss in the system. However, in changing from one gear ratio to the next higher speed ratio, it is necessary to reduce engine speed (and consequently its power), then gradually accelerate the vehicle to reach the full engine horsepower again. While this is accomplished with low transmission loss, the average power available for movement of the vehicle during this period is materially lower than with electrical transmission which has somewhat lower transmission efficiency. The result is that the high gear drive efficiency is effective at very few operating speeds. Fig. 1 indicates this clearly in terms of a normal speed-

tractive force curve, while Fig. 2 shows the same deficiency in terms of speed and percentage of horsepower delivered to the rail. From the latter curve it may be seen that with four-speed gearing the electrical transmission delivers 57 per cent more power to the wheels at 33 m.p.h. than a gear drive, or the engine would have to be 57 per cent larger with the latter system in order to sustain this train speed in a service requiring 7,500 lb. tractive force. With a train having a train and grade resistance of 5,000 lb., the geared unit would only reach 31 m.p.h., while the electric drive system would take the train to 48 m.p.h. with the same installed engine power.

Another important objection to a mechanical system of drive having changeable gear ratios is that each time the gears are shifted the clutch must be manipulated to disconnect the engine with the result that tractive

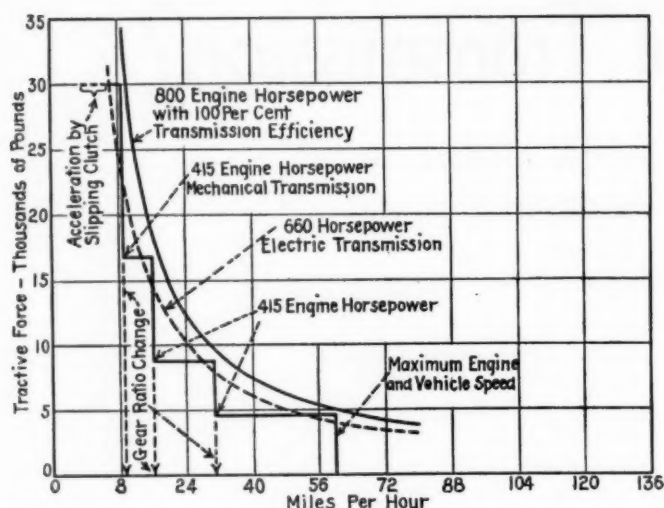


Comparison of Horsepower-Speed Characteristics of Mechanical and Electrical Transmissions with 800 Engine Horsepower

force is entirely lost during several seconds required for the engine to be disconnected, the engine speed to be lowered, the gears to be shifted and the clutch to be reclosed. This is conducive to surges in the train, which are objectionable, and sometimes damages the draft gears.

It has been proven by actual service that the electrical system of transmission (which has the effect of an infinite number of gear ratios) is much more effective in hauling a train over a variable profile than any type of mechanical drive as yet applied commercially.

To obtain the maximum utility of an engine where direct drive is employed, it is desirable to provide as high a gear ratio as possible in the high speed combination, still allowing a reasonably high maximum safe train speed. These two opposing factors usually result in a compromise which imposes a definite limitation of the maximum train speed due to somewhat rigid limitations in permissible engine speed. With the electrical form of transmission there is no definite relation be-



Speed-Tractive Force Characteristics of Mechanical Transmissions with 800 Engine Horsepower

tween the engine speed and the train speed, and as a result the engine is not abused if advantage is taken of downgrade sections of the road to improve schedules or make up time.

Simplicity Features Electrical Transmission

With any mechanical transmission the multitude of small road shocks generated at the driving wheels are transmitted directly to the engine with consequent increase in engine maintenance. This condition does not exist in an electrical system. With the latter drive there is also the advantage of "free-wheeling" due to the absence of the mechanical tie between the wheels and engine.

In the case of the early mechanical drive systems the engine drove but one of the car axles. With increased engine power it became necessary to drive more than one axle to permit greater tractive efforts without wheel slippage. This complicated the drive system considerably, necessitating side rods or the coupling of axles through gears, which increased maintenance expense. With the electrical system as many axles as desirable may be driven by the simple addition of a motor for each additional axle.

The problem of driving the axles of a swivel truck by mechanical means involves considerable expense and maintenance, which are considerably reduced by electric motor drive.

With electrical transmission and a ready electrical power supply such auxiliary apparatus as fans, air compressors, fuel pumps, heating plant blowers, etc., may be mounted in convenient locations and driven by electric motors. With mechanical drive most of these details must be driven from the engine or transmission, which generally results in a reduction of accessibility for maintenance and an uneconomical engine room layout.

The problems involved in providing for double end control or multiple control of several engines or vehicles is simple with electric drive. Control stations may be located at any desired place in the train. This is obviously impractical with mechanical drive, and attempts made to date to use remote electric or pneumatic control of clutches and gear shifts have led to undesirable complications. The success of modern multi-engined rail cars or locomotives may be directly attributed to the use of the electric system of transmission.

Power Plant Location

Inasmuch as there is no direct mechanical connection between the power plant and the axles of the car or

locomotive, the power plant may be located in any position which proves to be most desirable from the layout standpoint. Power plants may be suitably cushioned and the engines protected to the maximum from any road shocks. Obviously, this is not practical in a mechanical type of drive.

Usually some of the critical speeds of an engine (speeds which coincide with the natural twisting oscillations of the crank shaft) occur somewhere between the idling speed and the maximum operating speed and very frequently at such points that every time gears are shifted it is necessary to pass through these critical zones. With electrical transmission, by proper proportioning the flexibility of the electrical units, the effect of these critical speeds may be minimized and the combined unit can be so designed and worked out that the effect of criticals becomes negligible. With mechanical transmission it is often found necessary to run the train in these critical engine speed zones for a considerable length of time.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended August 10 totaled 583,473 cars, a decrease of 13,340 cars as compared with the previous week and of 20,225 cars as compared with the corresponding week of last year. This was also a decrease of 46,000 cars as compared with 1933. The principal decrease was on coal loading. Loading of miscellaneous freight, live stock, and forest products showed increases as compared with the week before and miscellaneous freight, grain and grain products, forest products, ore, and coke, showed increases as compared with last year. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, August 10, 1935			
Districts	1935	1934	1933
Eastern	124,460	125,516	138,005
Allegheny	109,477	107,982	131,391
Pocahontas	37,676	39,253	49,319
Southern	79,098	80,674	83,104
Northwestern	91,489	96,288	95,273
Central Western	92,772	101,245	85,212
Southwestern	48,771	53,010	47,439
Total Western Districts	233,032	250,543	227,924
Total All Roads	583,743	603,968	629,743
Commodities			
Grain and Grain Products	41,456	41,190	31,714
Live Stock	11,285	32,108	15,403
Coal	77,876	92,372	124,150
Coke	5,032	3,809	6,590
Forest Products	29,663	23,368	28,218
Ore	32,186	29,256	34,927
Merchandise L.C.L.	157,473	158,521	170,179
Miscellaneous	228,772	223,344	218,562
August 10	583,743	603,968	629,743
August 3	597,083	612,660	620,482
July 27	596,462	610,042	644,839
July 20	593,366	616,040	656,380
July 13	566,488	604,192	653,661
Cumulative Total, 32 Weeks	18,585,620	19,004,266	17,092,915

Car Loading in Canada

Car loadings in Canada for the week ended August 10 totaled 41,745. Although Civic Holiday on August 5, which was more or less general throughout Canada, had an effect, the total was 56 above the preceding week's total, according to the compilation of the Dominion Bureau of Statistics. Compared with last year, the total was up 1,432.

Congress Passes Pension Bill

Little opposition shown to measure — Investigation by special commission to come later

WASHINGTON, D. C.

ANOTHER railroad pension scheme was started on its way toward the courts, but with a provision for an investigation first that may bring it back to Congress next January, when the Wagner-Crosser bill (H. R. 8651 and S. 3151) was put through Congress in short order on Monday, August 19, without a record vote in the House and by a vote of 76 to 3 in the Senate. Senators Hale, Hastings and Metcalf voted against the bill while eight others who were absent had sent word indicating they would have voted for the bill if present. The only opposition in the House was expressed by Representatives Merritt, of Connecticut, and Rich, of Pennsylvania.

The bill is that proposed by the Railway Labor Executives' Association, supported also by the Railroad Employees' National Pension Association, designed to retire the older railroad employees with annuities based on their earnings and years of service, in order to make room for younger men, while holding out hope to the latter that similar pensions for them will in some way be financed before their turn comes.

It was proposed to finance the plan initially by payroll taxes amounting to 6 per cent, 2 per cent to be paid by the employees and 4 per cent by the carriers, but at the time the pension bill was passed the companion tax bill was still under consideration in the House ways and means committee, and it has been estimated that the actual cost of the pensions will gradually rise to 15 per cent of the payroll, in addition to a 3 per cent tax for unemployment insurance provided for in the social security act. An amendment was added to the pension bill to exempt railroads and their employees from the old-age pension requirements of the social security act, which was signed by the President last week, but the railroads are still affected by the provision for unemployment insurance.

Old Law Revised

The retirement annuity plan is in general that of the railroad retirement act of last year, which was declared unconstitutional by the Supreme Court of the United States on May 6, but because the court had held, in addition to other criticisms of the act, that the imposition of a compulsory pension system is beyond the Congressional power to regulate commerce, the new plan was divided between two bills, one authorizing an appropriation from the federal Treasury for the purpose and the other imposing taxes on the railroads (and the sleeping car and express companies) to provide the funds necessary to initiate the plan. Many features of the old law condemned by the court are, however, left in the revised bill.

Several changes in the bill proposed by the labor executives had been made by the House committee on interstate and foreign commerce, in the effort to maintain the theory that what was proposed was not a regulation of commerce, and to meet in part the suggestion of Attorney General Cummings, transmitted to Chairman Rayburn by the President on June 4, that instead of attempting to secure new legislation at this session Congress pass a resolution to create a commission to

"investigate the factual situation and make findings and suggestions for further legislation, if any." This was in accordance with the position taken by Co-ordinator Eastman that upon a proper showing of facts not now available the court might find sufficient relation between pensions and safety and efficiency to approve a bill.

Special Commission to Report

Because of the doubts as to the constitutionality of the measure a provision was added to the bill, similar to that of the proposed resolution, for the appointment of a special commission to make a thorough investigation and hold hearings "respecting desirable provisions for a sound retirement and annuity system," and report to the President and Congress by January 1 with such recommendations for legislation, if any, as it may deem necessary to give effect to its conclusions. Meanwhile the effective date for the pension plan is postponed to March 1, 1936.

Because there was no doubt that the tax rates proposed are too low to support the cost of the annuity payments provided for, the bill also provides that the Railroad Retirement Board shall make a report within four years with specific recommendations for such changes in the retirement system "as shall assure the adequacy of said retirement system on the basis of its experience and all information and experience then available." Such a report had also been provided for in the law of last year, because of objections then made that the bill had been crudely drawn and because the studies being made by Co-ordinator Eastman's staff had not been completed.

Both the board and the special commission are to study the desirability and practicability of substituting the provisions for annuities and other benefits to employees of the bill for any obligations for prior service under the existing voluntary pension plans of the railroads, so as to relieve the carriers from such obligations by transferring them to the new system. The special commission, to be composed of three Senators, three Representatives, and three others to be appointed by the President, is to investigate "all pertinent facts applicable by law to carriers by railroad engaged in interstate commerce," and particularly any and all questions for the investigation of which provision had been made under the preceding section relating to the report to be made by the board. In the making of such investigation the commission may consider the experience of other industries and of governments as well as of the railroad industry, and may avail itself of the assistance of all agencies of the federal government. An appropriation of only \$60,000 is authorized for the investigation but Mr. Eastman has already expended over \$300,000 in investigations connected with the subject.

Annuity Payments

The bill proposes to pay to the employees when they retire at age 65 or after 30 years of service, pensions based on their compensation when in service and their years of service (not exceeding 30), with a maximum

of \$120 a month. Originally it proposed to require that employees retire at 65 (with an exception for service until age 70 by agreement) but, on the theory that the bill was not intended as a regulation of interstate commerce, it was amended in the final draft so as merely to penalize those who do not retire by reducing their annuity by one-fifteenth for each year they continue in service beyond the age of 65 or the extended period. There is also provision for a similar "cut-back" of one-fifteenth for each year an employee may be less than 65 at the time of his first annuity payment.

Annuity payments are, as in the old law, to be determined by multiplying the years of service up to 30 by 2 per cent of the first \$50 of average monthly compensation, 1½ per cent of the next \$100, and 1 per cent of that above \$150. Compensation in excess of \$300 a month is not to be counted in computing either the pensions or the taxes.

The separate tax bill provides for income taxes of 4 per cent on the payroll, excluding compensation above \$300 a month to be paid by the carriers, 2 per cent by the employees, and 6 per cent by employee representatives connected with labor organizations recognized under the railroad labor act. The social security act, applying to employees in industry generally, provides for taxes of 3 per cent on the employers and 3 per cent on the employees and a maximum pension of \$85 a month, while it has no retroactive application for prior service.

Labor Executives Active

The bill passed had been reported by the House committee on interstate and foreign commerce on August 3 and by the Senate committee on interstate commerce on August 16, in the form of the House bill as a substitute for the original bill introduced by Senator Wagner, after hearings before sub-committees. The legislative committee and other members of the Railway Labor Executives' Association have been very active in soliciting support for the bill among members of Congress. On August 14 Representative Crosser read in the House a letter from the legislative committee urging Congress not to adjourn without enacting this legislation, saying that an overwhelming majority of both

houses of Congress and the President were in favor of it. A large number of signatures were obtained to a round-robin circular pledging members to attempt to hold Congress in session until the bill was enacted.

President Roosevelt had told newspaper men at his press conference that while he was in favor of such legislation if a plan could be found that would be approved by the courts he had not yet seen one that seemed likely to be so approved.

Hearings on H. R. 8652, the tax bill introduced by Representative Crosser to provide funds for the pension plan without mentioning it, were held before the House ways and means committee on August 15, 16, and 19, and the committee had taken no action when the pension bill was passed. Mr. Crosser told the committee that he was "ready to submit the matter without any argument on our part at all," and that "really all there is to the bill" was an income tax on all railroad workers and an excise tax on the railroads. Members of the committee showed some curiosity as to provisions of the other bill but Mr. Crosser tried to avoid reference to it, while R. V. Fletcher, general counsel of the Association of American Railroads, Julius H. Parmelee, director of the Bureau of Railway Economics, and C. A. Miller, general counsel of the American Short Line Railroad Association, who appeared in opposition, pointed out the necessity for considering the two bills as parts of a single plan of which the courts would naturally take judicial notice.

Fletcher Objects to Discrimination

When pressed as to the reasons for differentiating between railroad employees and others, Representative Crosser said that "the benefits already conferred by the government upon the railroads and their employees, as compared with that conferred upon other industrial institutions, more than justifies such a tax." "If additional legislation is passed still further benefiting the employees," he said, "that would simply be additional justification for the enactment of the tax bill now before the committee." He said that as the wages paid by the railroads are practically one-half of their operating revenues, a tax of 4 per cent on wages is in effect a tax of 2 per cent upon operating revenue.

Comparative Payments By Carriers Under Social Security Act and Railroad Retirement Bill

Year	Social Security Act		Unemployment insurance		Railroad Retirement Bill (H. R. 8651)		Total cost to carriers	
	Old-age pensions				Disbursements		Under Social Security Act and Railroad Retirement bill	
	Rate per cent	Amount	Rate per cent	Amount	Total	Carrier proportion	7 = 2 + 4	3 = 4 + 6
1936	1	1	\$18,160,000	\$70,800,000	\$47,200,000	\$18,160,000	\$65,360,000
1937	1	\$17,940,000	2	36,320,000	86,400,000	57,600,000	54,260,000	93,920,000
1938	1	17,940,000	3	54,480,000	100,800,000	67,200,000	72,420,000	121,680,000
1939	1	17,940,000	3	54,480,000	115,200,000	76,800,000	72,420,000	131,280,000
1940	1½	26,910,000	3	54,480,000	128,400,000	85,600,000	81,390,000	140,080,000
1941	1½	26,910,000	3	54,480,000	144,000,000	96,000,000	81,390,000	150,480,000
1942	1½	26,910,000	3	54,480,000	157,200,000	104,800,000	81,390,000	159,280,000
1943	2	35,880,000	3	54,480,000	169,200,000	112,800,000	90,360,000	167,280,000
1944	2	35,880,000	3	54,480,000	184,800,000	123,200,000	90,360,000	177,680,000
1945	2	35,880,000	3	54,480,000	196,800,000	131,200,000	90,360,000	185,680,000
1946	2½	44,850,000	3	54,480,000	210,000,000	140,000,000	99,330,000	194,480,000
1947	2½	44,850,000	3	54,480,000	222,000,000	148,000,000	99,330,000	202,480,000
1948	2½	44,850,000	3	54,480,000	235,200,000	156,800,000	99,330,000	211,280,000
1949	3	53,820,000	3	54,480,000	246,000,000	164,000,000	108,300,000	218,480,000
1950	3	53,820,000	3	54,480,000	258,000,000	172,000,000	108,300,000	226,480,000
1951	3	53,820,000	3	54,480,000	268,800,000	179,200,000	108,300,000	233,680,000
1952	3	53,820,000	3	54,480,000	279,600,000	186,400,000	108,300,000	240,880,000
1953	3	53,820,000	3	54,480,000	289,200,000	192,800,000	108,300,000	247,280,000
1954	3	53,820,000	3	54,480,000	297,600,000	198,400,000	108,300,000	252,880,000
1955	3	53,820,000	3	54,480,000	304,800,000	203,200,000	108,300,000	257,680,000
1956	3	53,820,000	3	54,480,000	310,800,000	207,200,000	108,300,000	261,680,000
1957	3	53,820,000	3	54,480,000	315,600,000	210,400,000	108,300,000	264,880,000
1958	3	53,820,000	3	54,480,000	319,200,000	212,800,000	108,300,000	267,280,000
1959	3	53,820,000	3	54,480,000	322,800,000	215,200,000	108,300,000	269,680,000
1960	3	53,820,000	3	54,480,000	322,800,000	215,200,000	108,300,000	269,680,000
1961	3	53,820,000	3	54,480,000	322,800,000	215,200,000	108,300,000	269,680,000
1962	3	53,820,000	3	54,480,000	320,400,000	213,600,000	108,300,000	268,080,000
1963	3	53,820,000	3	54,480,000	318,000,000	212,000,000	108,300,000	266,480,000
1964	3	53,820,000	3	54,480,000	314,400,000	209,600,000	108,300,000	264,080,000
1965	3	53,820,000	3	54,480,000	310,800,000	207,200,000	108,300,000	271,680,000

Mr. Fletcher told the committee that "it is very well established that Congress does not have the power, as broad as the taxing power may be, to select a particular class of individuals and subject them to an income tax when other individuals or employees are not subjected to the same tax burden, and when there is obviously no basis for differentiation. Strong as the power of Congress may be in the matter of taxes, there are limitations upon it. It must be reasonable, and it must not be arbitrary."

Railroads a Laboratory Guinea Pig

After pointing out that the bill would impose a great burden on the railroads while similar burdens are not placed on competing forms of transportation he also protested "against the disposition on the part of Congress, manifestly, from time to time to select the railroads as the medium of experimentation in the social field, when there is no distinction between railroads in that respect and other lines of business that are important to the public well-being, and where the interest of Congress should be just as much concerned about the welfare of workers in the steel industry, the lumber industry, or the textile industry as in the railroad industry." "Congress has selected the railroads for a series of such experiments," he said. "In this connection you cannot do that under the commerce power. That has been settled by a decision of the Supreme Court. Now, in all fairness to an industry that is struggling for existence, and one which is essential to the welfare of the country, what purpose can be gained, either in law or morals, for the selection of the railroads of the country for this cruel discriminatory treatment?"

Estimates of Cost to Railroads

Dr. Parmelee gave an estimate that the proposed tax on the railroads and other carrier organizations, having a total of 1,214,791 employees as of May, 1935, would be \$72,000,000 for the first year and that the carrier proportion of the disbursements under the pension bill would increase from \$47,200,000 in 1936 to \$215,000,000 by 1959. Under the social security act, he said, the payments by the carriers would range from \$17,940,000 in 1937 to \$53,820,000 by 1949 for pensions, and from \$18,160,000 in 1936 to \$54,480,000 by 1938 for unemployment insurance. Adding the tax for unemployment insurance under the law to the carrier proportion of pension payments under the bill, he said, would make a total of \$271,680,000 in 1965, as shown in the accompanying table.

During the brief debate in the House proponents of the bill said that every effort had been made to remedy the features of the bill that had been criticized by the court and that "we have every reason to believe that the Supreme Court will now declare this bill constitutional." In the Senate, Senator Hastings, of Delaware, argued against the bill and particularly questioned the reasons for having two separate bills.

Initial Deficit 3.7 Billions

Co-ordinator Eastman had pointed out that plan would start out with an initial deficit in the obligation for past service of over \$3,700,000,000. After considering amendments to increase tax rates, the committee decided to delay action or consult the President, who, it was stated, was reluctant to approve the pension bill without provision for necessary funds, and to consider matter again Thursday. Meanwhile a committee of railway labor executives called upon the President to urge approval of the plan.

While the House committee was considering the ques-

tion Thursday morning, the Senate finance committee, the fourth committee to consider the subject at this session of Congress, held a hearing on the tax bill. E. A. Krauthoff, counsel for the railway labor executives, urged its passage, saying that if four years from now the government finds that 6 per cent does not take care of annuities being paid out, the labor executives will be willing either to have the law repealed or to have the tax increased. Judge Fletcher, appearing for the railroads, said it was obvious that it would be necessary to reduce the benefits or increase the tax unless the deficit is to be paid by the Treasury.

The House committee, after hearing from the President, ordered a favorable report on the tax bill, with amendments changing tax rates to 3½ per cent on the railroads and the same rate on employees and limiting bill to one year.

Travel Habits Shown In Replies to Questionnaire

A QUESTIONNAIRE sent to 100 business and professional men in Chicago and vicinity by Gale & Pietsch, Chicago, reveals the travel habits of the 65 persons who replied and provides some basis for analyzing the factors that influence the traveling public. The answers show that train equipment, smoothness of roadbed, meals in dining cars, scenery, convenience of the terminal, courtesy of employees and speed influence the choice of railroad used, and that people in this group use the railroad in preference to their own automobile, the motor bus or the airplane. The questions asked and summaries of the replies follow:

1. *Granting the rate of fare and speed are identical between points, what reasons induce you to prefer one railroad over another?*

The six items listed with this question were checked as follows: Train equipment, 51; smoothness of roadbed, 40; meals in dining cars, 37; scenery, 31; convenience of terminal, 31; and courtesy of employees, 25.

Twelve persons marked the items listed to show the order of their importance, with the result that for first choice train equipment was marked four times, smoothness of roadbed four times, convenience of terminal three times and meals in dining cars once. The following table gives the preferences in detail:

	Choice					
	1st	2nd	3rd	4th	5th	6th
Scenery	4	2	—	—	2	2
Train equipment	4	5	—	—	—	1
Convenience of terminal	3	—	1	2	2	1
Courtesy of employees	—	1	2	3	1	3
Smoothness of roadbed	4	1	4	1	1	—
Meals in dining cars	1	2	4	1	1	—

Other reasons cited for preferring one railroad over another were: Acquaintanceship with railroad officers and employees, speed of trains, assurance that the track has been properly maintained, habit, ability of engineer to start and stop gently, modern improvements and safety, and efforts to satisfy customers.

2. *Do you generally read railroad advertisements in newspapers?* To this question, 31 answered yes and 33 no. Among the reasons given for not reading newspaper advertisements were: Unnecessary, deal with scenery rather than rates and schedules, seldom travel, consult ticket office, use other sources for information, no news, too busy and waste of time.

3. *If so, what especially appeals to you in these ad-*

vertisements? Some of the comments were: Attractive presentation of the truth, information, rates, train illustrations, scenery, advantages cited by each road, romance of the railroad, schedules, improvements, lack of information that creates a desire to travel by rail, national parks, speed and safety, problems of the railroad, service, accommodations, low cost, time saved, and comfort.

4. *Has railroad advertising in newspapers induced you to visit any of the attractive points featured?* Sixteen persons answered yes and 46 no.

5. *Has this advertising influenced you to prefer the railroad as a means above others to get to the desired destinations?* Fifteen persons answered yes and 35 no.

Majority Would Rather Ride a Train

6. *If you were to take a trip to Minneapolis, which would be your first, second, third or fourth choice of travel?* Forty-eight persons would rather ride a train, 9 their own automobiles, 7 an airplane and 1 a motor bus. The preferences are tabulated below:

	Choice			
	1st	2nd	3rd	4th
Railroad	48	8	5	—
Motor bus	1	—	8	18
Own automobile	9	19	10	1
Airplane	7	12	7	6

Those who preferred the railroad gave as their reasons: Speed and comfort, least lost of time, less trouble, more pleasant, better accommodations, new trains, ride at night, better meals, and habit. Those who preferred their own automobiles ascribed their preference to comfort, scenery and the pleasure of driving. Those who preferred airplanes cited thrill, more convenient and pleasant. The one person who preferred to ride a motor bus gave economy as his reason.

7. *Has a representative of a railroad's passenger department ever called on you at your office—without any previous inquiry from you—to solicit your patronage for business trips on his road?* Fifteen replied yes and 46 no.

8. *Would you appreciate or resent a personal call from a railroad representative for the purpose of soliciting in a courteous manner your patronage for his road?* Fifteen persons said that they appreciate solicitation, 35 were indifferent and 14 would resent.

9. *After taking a railroad trip, either for business or pleasure, has any railroad ever written you thanking you for your patronage?* Nineteen persons answered yes and 42 no.

Suggestions for Improving Service

10. *What brief suggestions can you make as to how the railroads may give better service to the public?*

One individual recommended speed, service and convenient hours for leaving and arriving, and attractive, clearly printed and understandable timetables. Another said cancel the Pullman surcharge and reduce Pullman charges and lower railroad rates especially for five-day round trips.

Another suggested that the terminal-to-terminal time be reduced by the reduction of delays at stops where express is loaded or unloaded. He favored air-conditioning because it excludes dirt and noise but feels that most air-conditioned trains are kept too cool.

Another recommended that the railroads advertise that they will deliver tickets and baggage checks to the home or office C.O.D. and will check trunks to the destination, home or hotel.

Another recommended alternate routes on round-trip tickets similar to the practice on western roads.

Another suggested that enginemen be taught to start and stop properly, that individual air-conditioning out-

lets be provided in berths so that the occupant may regulate the flow of air to his comfort.

Another believes railroads should charge for the handling of baggage as is done abroad, or that a person traveling without baggage should be given a discount.

Another recommended better dining car service and that the railroads develop a better medium for indicating points of interest along the line. He also suggested quietness in stations where sleeping cars are parked at night.

Another recommended more courtesy and suggested that the railroads arrange with local cab and truck companies to pick up and deliver both trunks and hand baggage for a charge.

The owner of a dog suggested that the railroads provide sanitary kennels for dogs in baggage cars. He contends that annoyances of the present system and the fear that loose baggage might injure a pet tied up in the baggage car cause some people to travel by automobile rather than by train.

Another feels that train employees should be able to describe and point out all important scenic and historical points along the lines in order to add to the enjoyment of a trip.

Railroad Reorganization Bill Passed

WASHINGTON, D. C.

THE bill recommended by Co-ordinator Eastman in his report to the President earlier in the year, to amend Section 77 of the federal bankruptcy law in its relation to railroad reorganizations, was passed by the House on August 15 and by the Senate on August 20, after the Senate committee on interstate commerce had reported the bill in the form in which it had been reported by the House judiciary committee. The bill passed is H.R.8587, which includes numerous revisions made after extensive hearings before the committee and conferences with Mr. Eastman and Leslie Craven, his counsel, in an effort to overcome obstacles which experience had demonstrated in the law.

One of the purposes of Section 77 was to provide a way by which a plan of reorganization for a railroad could be worked out by agreement with the creditors with the approval and assistance of the Interstate Commerce Commission and the courts, without the long and expensive procedure of receivership practice. No reorganizations have been accomplished under it and Mr. Eastman's office has been studying the subject for months in an effort to improve its provisions. An outline of the changes made by the new bill, as given in the report of the House judiciary committee, was published in the *Railway Age* of June 29, page 1012.

Since one of the main difficulties found under the former law was that a minority of more than one-third of any class of creditors could obstruct and prevent the approval of any plan, the bill provides that two-thirds of those of each class who vote upon the plan may bind the others, instead of two-thirds of the entire number. It is also provided that a court may prescribe a fair and equitable plan over the dissent of such minorities. Under provisions of the bill the Interstate Commerce Commission will tentatively approve a reorganization plan, after hearings; it will then be passed upon by the court after hearing the objections of all parties in interest. The plan, if approved by the court, will then be submitted to the creditors and shareholders. The con-

sent of two-thirds of those of each class who vote upon the plan will bind the remainder in that class and the judge may make the plan effective, even if not so accepted, if he finds that it conforms to the requirements, provides fair and equitable treatment for the interests of those rejecting it, and that their rejection is not reasonably justified in the light of their respective rights and interests.

To avoid the necessity for extensive valuation proceedings under the provisions of the act, the bill has attempted to provide for a shorter method by which such issues may be determined without the introduction of testimony as to the original cost of the property or its reproduction cost based on inventory and appraisal. This provision reads: "If it shall be necessary to determine the value of any property for any purpose under this section, the commission shall determine such value and certify the same to the court in its report on the plan. The value of any property used in railroad operation shall be determined on a basis which will give due consideration to the earning power of the property, past, present, and prospective, and all other relevant facts. In determining such value only such effect shall be given to the present cost of reproduction new and less depreciation and original cost of the property, and the actual investment therein, as may be required under the law of the land, in light of its earning power and all other relevant facts."

Under the terms of the bill a plan of reorganization may include, for the purpose of preserving such interests of creditors and stockholders as are not otherwise provided for, provisions for the issuance to any such creditor or stockholder of options or warrants to receive, or to subscribe for, securities of the reorganized company in such amounts and upon such terms and conditions as may be set forth in the plan. The plan is required to provide for fixed charges "in such an amount that, after due consideration of the probable prospective earnings of the property in the light of its earnings experience and all other relevant facts, there shall be adequate coverage of such fixed charges by the probable earnings available for the payment thereof."

Under the present Section 77 trustees need not be appointed for railroads that have filed petitions under the bankruptcy statute, and in some instances the courts have left the properties in the hands of the management. Because of numerous criticisms the amendments provided in the new bill require the appointment of trustees and provide that where a trustee is selected by the court who is an officer, director, or employee of the company, an independent trustee shall also be appointed.

On the theory that certain banking firms have enjoyed an advantage through inside information as to the names and addresses of security holders, the bill authorizes the court to require the lists to be furnished to trustees. Provisions are also included to enable more comprehensive regulation by the commission of the activities and expenses of protective committees.

Senator Hastings, who had presented the original Section 77 to the Senate two years ago, found no fault with the amended bill. He said that Congress is undoubtedly giving to the courts and to the Interstate Commerce Commission very great power but that he was quite satisfied that it had become necessary in order to make the bill workable. He said the railroad executives had objected to the appointment of a trustee and that he had had in mind offering an amendment striking out the provision, but that he hoped that if the bill should pass "the judges who administer it will do so with great common sense." The bill is one of those that had been recommended by President Roosevelt.

The Southern Pacific Knows Its Facts

IN 1923, executives of the Southern Pacific began to feel the need for some agency which could provide operating data for use in the presentation of cases before railroad commissions and similar bodies. Previous to that time, such cases as involved transportation questions were handled by local operating officers, frequently taking them from their regular duties for considerable periods when they could not readily be spared.

To correct this situation, the Southern Pacific created a Bureau of Transportation Research, under the supervision of a practical operating man, on which was placed the responsibility for preparing all operating and transportation data necessary for the presentation of cases before commissions and similar bodies and also of providing qualified witnesses from among its personnel to present such data in the form of exhibits, or by direct testimony on the witness stand, as the case might require. It was anticipated that, in this manner, the same sort of expert testimony would be made available, without the necessity of taking operating officers from their normal duties to provide it. In actual practice, this has proved to be the case.

Work of the Bureau Changed

In the 12 years of its existence, the bureau has developed considerably beyond its original scope, until, at present, commission and other case work comprise only 40 per cent of its activities, the remaining 60 per cent being devoted to the development and analysis of data pertaining to general operating, transportation and traffic problems.

Since the exhibits are prepared by this bureau for presentation at hearings of all sorts where, frequently, they are presented before people unacquainted with the technicalities of railway practice, a special effort is made to have them so prepared that persons relatively unfamiliar with railway work may grasp the situation at a glance. Graphic exhibits are used as largely as possible for this purpose. For example, in combating a pending train-limit bill, it was not considered sufficient merely to state that this bill would cost the railroad certain sums if it were made effective. Instead, the bureau prepared graphic charts, amply supported by figures. One chart showed the present operations. An operating plan under the conditions imposed by the train-limit bill was then set up in full detail and charted, showing the additional trains that would be necessary and the expense involved in operating these trains, and the two charts were presented, depicting the situation more clearly than reams of figures, considered alone, could have done.

Similar charts were also prepared recently in connection with a bill to require the use of an extra caboose in the middle of the train in mountain operation. In this case, it was shown that, under present operating conditions, no undue strain is placed upon the trainmen and also that present conditions provide for safe operation. This purpose was accomplished by charts showing present and proposed operations. It might be mentioned, incidentally, that both of these cases were decided in favor of the railroads by the Federal District Court.

Costs Broken Down

In preparing petitions for branch line abandonment, the bureau makes complete studies of the traffic being handled, and also of potential traffic as well. Figures on

the cost of operation are not general or estimated, but are specific figures, representing the amounts expended on the branch in question for wages, maintenance, etc., with such general overhead costs as supervision subdivided to cover the branch line operation. As a result, the S. P. has been more than usually successful in securing permission to abandon unprofitable branch line mileage.

One member of the bureau's staff devotes all of his time to rail-highway co-ordination, preparing data to show where such co-ordination is likely to prove more efficient than existing service, and the provision of such service in one case was a controlling factor in securing authority for the abandonment of a branch line rail service.

The bureau also prepares, for the passenger traffic department, cost studies covering special train movements, these figures being used as a basis for the quotation of special party rates. There is no rule-of-thumb basis for determining the costs of such service, and the work of the bureau in this connection has been found to be particularly valuable. Engineering-operating studies are also conducted; for example, analyses of the efficient location of water tanks, side track extensions, side track locations, the installation of spring switches and other related operating and engineering problems arising on the various divisions of the Pacific System.

Work Reports

The bureau submits to interested officers, on the first of each month, a report of the activities in which it is currently engaging, this showing the jobs separated as between cases in progress, cases pending and special studies of operating data not intended for legislative or legal purposes. A summary of one such report for a recent month showed 31 cases in progress or pending, in connection with which the bureau was preparing data, and, in addition, listed 20 special studies being made for other purposes. These activities included, among other things, the following:

Rates and train operating costs (passenger and freight)

- Co-ordinated rail-highway problems
- Branch line abandonments
- Pooling passenger service
- Full crew laws
- Cost of line changes
- Refrigeration problems
- Harbor charges
- Yard operations
- Consolidation of lines
- Unit costs in M. of W. and M. of E. departments
- Land grant rates
- Motor car crews
- Live stock handling costs

Numerous other studies involving two or more of the above factors were also listed as being in progress.

Data Prepared on Many Subjects

In the month in question, 11 cases were listed for hearing on definite dates. The variety of subjects handled by the bureau is indicated by the fact that three involved freight motor transport service, two of which dealt with proposed extensions of such service, while the other was concerned with clarifying the operating rights of such a service in the vicinity of Los Angeles. In the two first cases, the bureau prepared graphic charts showing a complete picture of the existing transportation service between the points in question, involving traffic surveys showing the existing and potential traffic.

Three other cases dealt with rates on live stock. For these, the bureau prepared cost studies showing that

the rates in question were just and reasonable, with exhibits portraying the additional difficulty and expense involved in handling live stock in comparison with other freight.

A passenger motor transport case involved a proposal to pool passenger traffic, of a semi-suburban nature, between the railway and its bus-operating subsidiary. In this case, exhibits were prepared showing relative costs, the flow of traffic, and proposed new schedules providing an improved and more flexible service than that at present in existence.

Three other cases involved strictly operating matters. One of these was the Nevada train-limit law, on which, in addition to operating and cost data, exhibits were prepared showing the importance to the carrier of maintaining at as low a level as possible the operating unit cost applicable to the transportation of perishables, not only to the fruit-growing regions but also to the country as a whole, since the prompt, efficient handling of fruit blocks across Nevada was involved in the proposed train-limit bill.

Another hearing was on a bill to prohibit train service employees from receiving train orders by telephone or telegraph. The remaining case dealt with a bill providing for a pilot on light engines operating more than three miles on main track, the exhibits showing that the present operation is entirely safe.

Operating Studies

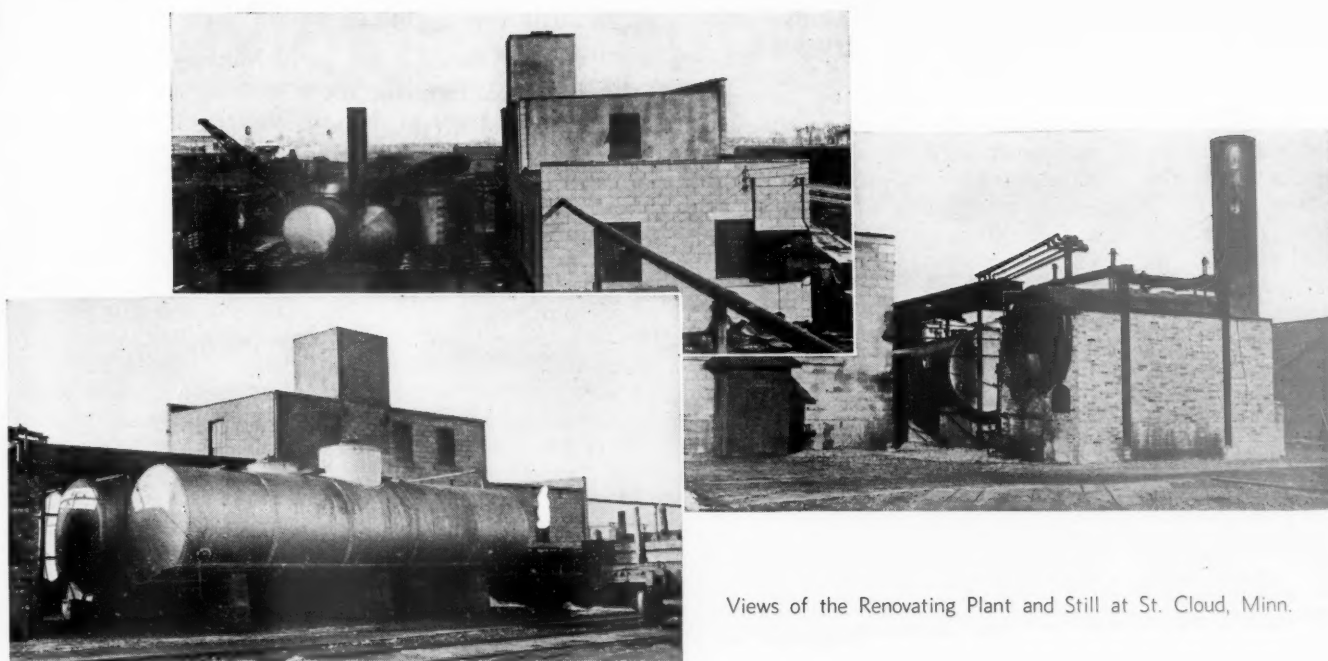
Among other work of the bureau for the month were two cost studies of special passenger train movements, and studies involving the economics of three separate sections of line. Several studies were also under way involving the possibility of supplanting one form of service with another, mostly from rail to highway, but, in one case, from steamer to rail. A check was also being made of the efficiency with which milk and cream were being handled on passenger trains and the cost of such service.

General studies in progress included one covering costs of various work operations in the maintenance and mechanical departments, another covering all Pacific Lines yard operations, and a third covering the handling of fuel oil, the latter including diagram cost charts. Data were also being prepared covering such widely varying subjects as the retirement of Mallet-Mogul locomotives and the operating problems involved in the establishment of a fast merchandise train from San Francisco to Los Angeles.

The Bureau of Transportation Research is in charge of a practical operating man, who has been with the bureau since its inception, and who reports to the assistant to the president. He works closely with all other department heads, in view of the fact that the work of the bureau extends to all departments. At this time, the complete personnel comprises 13 men, including 4 engineers with practical experience in either operating, maintenance or mechanical matters. A cost accountant is also employed, while the chief clerk is an experienced statistician.

* * *

SOMETHING UNUSUAL in train dispatching, a "31" train order applying to a parade, was issued at Jackson, Miss., to guide the Illinois Central pioneer train and its crew throughout the "Railroad Week" parade. It read as follows: "Engine 1 will run special from south on Mill street to Capitol, east on Capitol to old Capitol building, north to Mississippi, west to Lamar, south to Amite, west to Mill street, with rights over all traffic, disregarding all traffic lights." It was signed by Walter A. Scott, mayor, as chief train dispatcher, and was countersigned by other city officials.



Views of the Renovating Plant and Still at St. Cloud, Minn.

Great Northern Has New "Dope" Washing Plant

All journal packing shipped to central point for renovation —
Facilities embody mechanical improvements

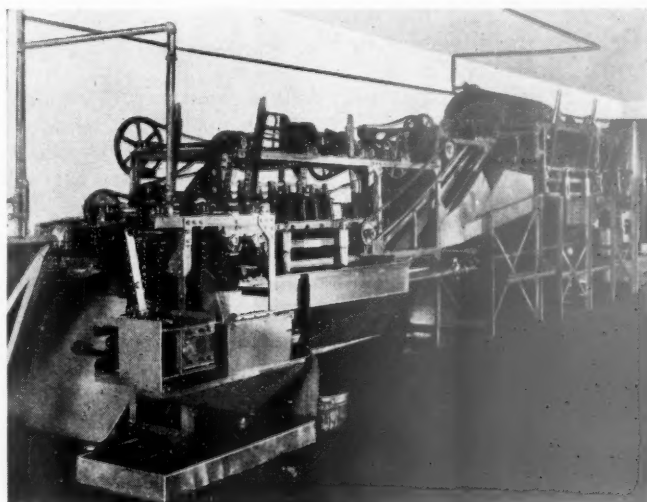
WITHIN recent months, the Great Northern has put a price on packing removed from car journals and centralized methods of renovating it. With the installation at St. Cloud, Minn., near St. Paul, of a renovating plant, old packing is gathered from all points on the railroad and mechanically cleaned and otherwise reconditioned for further use in accordance with rigid lubricating requirements. Approximately 200,000 lb. of cotton waste and approximately 90,000 gal. of car oil, costing approximately \$30,000 per year, have been required in the past for axle lubrication on freight and passenger equipment on this road, and the new plant, while installed too recently to reach its maximum utility, is expected to produce substantial reductions in these expenditures, as well as to reduce car maintenance and operating costs by raising the standard of lubrication.

Equipment Installed at St. Cloud

The new renovating plant is operated under the direction of the stores department, and is similar in general design to one described in the *Railway Age* of June 11, 1932, although the equipment is modified in several details. The plant machinery is installed in a newly-constructed building and is a continuous system in which the old packing, which is received at the plant in steel drums, is picked apart mechanically when dumped into the machine, passes into an oil vat containing agitators to remove the dirt, is then carried by conveyor to an

automatic power press which removes the old oil, and then to a second vat containing clean oil, where it is again washed and saturated, following which it is carried to a set of rolls to squeeze out excess oil, and is finally delivered into barrels ready for shipment, the dirty oil going to a distilling plant for purification.

Previous railroad installations of this type of renovator have two large washing machines, each contain-

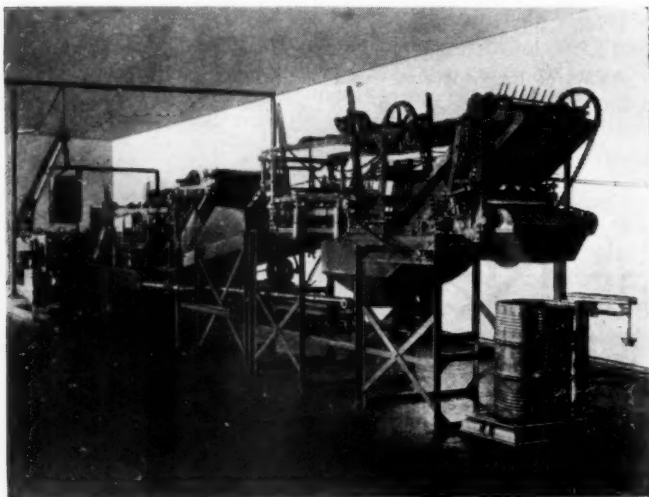


The Renovating Machinery from the Receiving End

ing approximately 1,250 gal. of oil. In the earlier model, as the packing leaves the first machine after being washed and all car dirt and short ends removed, it is passed through a sectional roller to remove the oil, the packing then going through a second oil vat, where it is rinsed and resaturated, this operation removing any fine dirt remaining in contact with the dirty oil. The results with this earlier model are satisfactory, providing the oil in the second washing machine is kept clean. This depends on the efficiency of the rolls at the discharge end of the first washer in preventing dirty oil from being carried into the second washer. To change this oil completely at frequent intervals, however, requires the renovation of a large volume of oil; otherwise, fine dirt will be left in the packing.

Machinery Improved

The changes incorporated in the plant installed on the G. N. were designed chiefly to prevent difficulties of



The Renovating Machinery from the Delivery End

this kind. Thus, the first washing machine in the G. N. installation holds 570 gal. of oil instead of 1,250 gal., and the top of the tank is 55 per cent wider to facilitate the dissipation of moisture. The temperature of the oil in the new plant has also been increased to 250 deg. F. to evaporate moisture at a higher rate. This vat has a screen about midway between the top and the bottom, which supports the old packing and permits the short pieces of waste and other foreign material to fall into the bottom. It is equipped with steam coils which bring the oil to a boiling temperature to evaporate the moisture in the old packing as it passes through this vat.

The St. Cloud plant also differs from earlier models in using an automatic power press instead of sectional rollers, this press removing the dirty oil from the waste more completely and thus preventing its being carried into the resaturation vat. In the vat where the dry waste is saturated with clean oil, a 65-gal. tank is used, instead of the 1,250-gal. tank in the earlier model, by providing for a constant flow of clean oil into this tank to maintain uniform depth of oil, by renewing the oil in the first vat after washing about 35,000 to 40,000 lb. of old packing, and by emptying the oil from the second vat into the first vat about twice each day through a 3-in. pipe line connecting the two tanks. As the packing is pressed almost dry before it enters the second vat, it is necessary to add additional oil two or three times a day. From this vat, the waste passes

through a set of rolls adjusted to leave the required $3\frac{1}{2}$ pt. of oil in each pound of waste.

New "Dope" in 12 Minutes

Barrels containing the dirty packing are elevated to the dumping position by an electric crane, and the waste, when clean, drops continuously into empty barrels placed on a scale at the delivery end, the machine being geared to renovate and deliver the finished product in approximately 12 minutes from the time the old waste is dumped onto the picking table.

The plant includes a system of filter presses with which to filter the dirty oil, although, for the present, the packing received at the plant contains so much dirt as to require distillation and equipment has been built to purify the oil in this manner until the quality of the old packing received at the plant is improved, which will occur when the renovated packing begins to come back for reconditioning.

Oil Cleaned by Distillation

The oil still is built some distance from the renovating plant and includes a 10,000 gal. storage tank for dirty oil, a 10,000-gal. tank for renovated oil, a 5,000-gal. treating tank and a 4,000-gal. tank for storing fuel oil for the still. All dirty oil pressed from the waste or contained in the wasting washing machines first passes from the renovating plant into a 600-gal. tank underneath the floor of the plant and is then pumped into the storage tank at the still, from which it is pumped into the still as fast as 4,000 gal. of dirty oil is collected. The still is heated by fuel oil to a maximum temperature of 775 deg. F., which completely vaporizes the oil and forces it into coils submerged in water where the oil vapor is condensed. It then flows into a 5,000-gal. treating tank and thence to the 10,000-gal. storage tank for new and renovated oil.

Ship Packing in Covered Drums

With the new plant in operation, special care is now being taken to save all old journal packing and return it to the store department for shipment to the renovating plant in steel drums, equipped with removable covers, assigned to this service. When received at the plant, the waste is weighed and delivered to the owners of the equipment, who are paid a flat price per lb., based on the amount of old waste delivered to them for renovation, and the renovated packing is distributed by the stores to all points on the system for use in packing journal boxes.

* * *



A Union Pacific Freight Train near Omaha, Neb.

Motor Transport Section



New Trucks Just Placed in Station-to-Station Service

Santa Fe Begins Truck Operation

Installs service in California branch line territory after six months' trial

ON October 25, 1934, the Santa Fe Transportation Company, a truck-operating subsidiary of the Atchison, Topeka & Santa Fe, began operations in California, in an attempt to solve a problem in merchandise handling. At that time, in view of the then experimental nature of the operations, the two truck routes established were served with leased equipment.

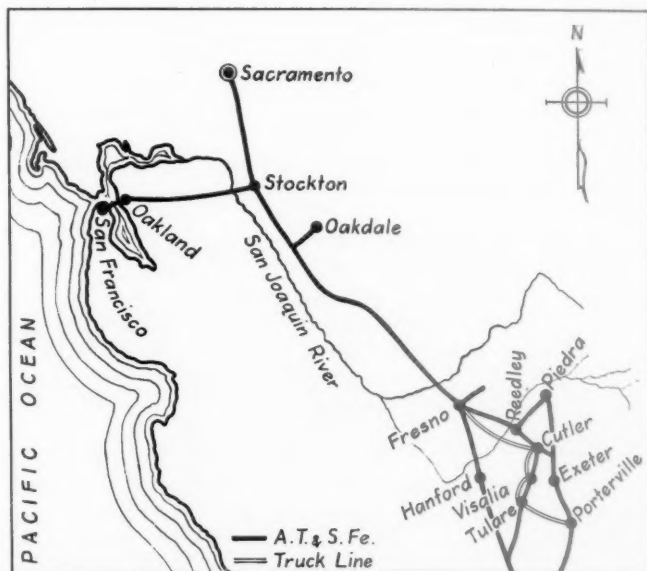
After six months' operations, however, the plan proved so successful as to warrant its being placed on a permanent basis. Accordingly, the Santa Fe Transportation Company purchased an International 12-ton truck and a General Motors 6-ton truck, which replaced the leased equipment on the truck routes early in April. Both of these trucks are of the tractor with semi-trailer type, powered to handle an extra trailer if the service requires.

Problem Solved

The problem that presented itself to the Santa Fe was the prompt and efficient handling of merchandise traffic to small cities in the vicinity of Fresno. This being the center of a fruit-growing territory, a considerable mileage of branch lines had been built and a number of important towns, such as Cutler, Visalia, Tulare, Exeter, Lindsay and Porterville, had developed along these branches. With competition from other forms of transportation, the demand for speed in handling merchandise to and from these points grew to such an extent that, with a declining volume of traffic and a continuing demand for

prompt service on such traffic as remained to the rails, it was no longer profitable to handle the business with branch line steam trains. To obtain the required speed

(Continued on page 256)



Map of the San Joaquin Valley, Where the Santa Fe Operates Station-to-Station Truck Service



Passenger Motor Transport Series

Article No. 4

D. & R. G. W. Expands Bus Operations

THE Denver & Rio Grande Western is one of the earliest proponents of rail-highway service, having begun such operations in 1926. In the intervening years, these operations have been built up gradually in several ways, and the developments this year have been more far-reaching than in any year since the inception of co-ordinated rail-highway service.

In accordance with its traditions as a scenic railroad, the D. & R. G. W. has established a number of motor coach routes that take full advantage of the scenic mountain splendor of Colorado. At the same time, bus lines have been established connecting the cities of the high plains at the foot of the mountains. Coach routes have also been established to provide more convenient and flexible service in the branch line territory, and this year, for the first time, long distance bus routes have been established. Another type of operation is the combined freight and passenger lines in places where this form of motor transport is more efficient. In fact, the trucking and the bus interests of the D. & R. G. W. are so interwoven as to require the inclusion of both in any article describing this railway's motor transport operations.

A description of these various operations follows, and the manner in which the D. & R. G. W. motor operations blanket the territory served by the railroad is indicated by the accompanying map.

Denver-Colorado Springs-Pueblo Motor Way

Motor transportation service is rendered by several companies in which the Denver & Rio Grande Western holds either a controlling or a partial interest. The first of these is the Denver-Colorado Springs-Pueblo Motor Way, Inc., which began operations between Denver and Pueblo in April, 1926. The service has been extended until there are now also four daily round-trip

Takes advantage of territory traversed to inaugurate scenic tours as well as long distance lines

schedules between Denver and Trinidad two daily schedules between Pueblo and La Junta and one daily schedule between Pueblo and Canon City, connections being made with the trans-continental lines at Denver, La Junta and Trinidad. This service supplements but does not replace train service between these points. The equipment used by this company consists of modern 29 and 33-passenger coaches.

Motor tours covering the Pike's Peak region are a feature of the summer service. Sightseeing parties are taken in comfortable touring cars through the residence section of Colorado Springs, past the Broadmoor district into South Cheyenne canon. Famous scenic attractions on this motor tour include Seven Falls, the Garden of the Gods, Manitou and the Cave of the Winds. The ride up Ute Pass to Cascade is a prelude to the drive over the world's most famous motor highway to the summit of Pike's Peak. The Denver-Colorado Springs-Pueblo Motor Way, Inc., covers 357 miles of highway and operated 603,000 miles in 1934, with 12 vehicles.

Rio Grande Motor Way, Inc.

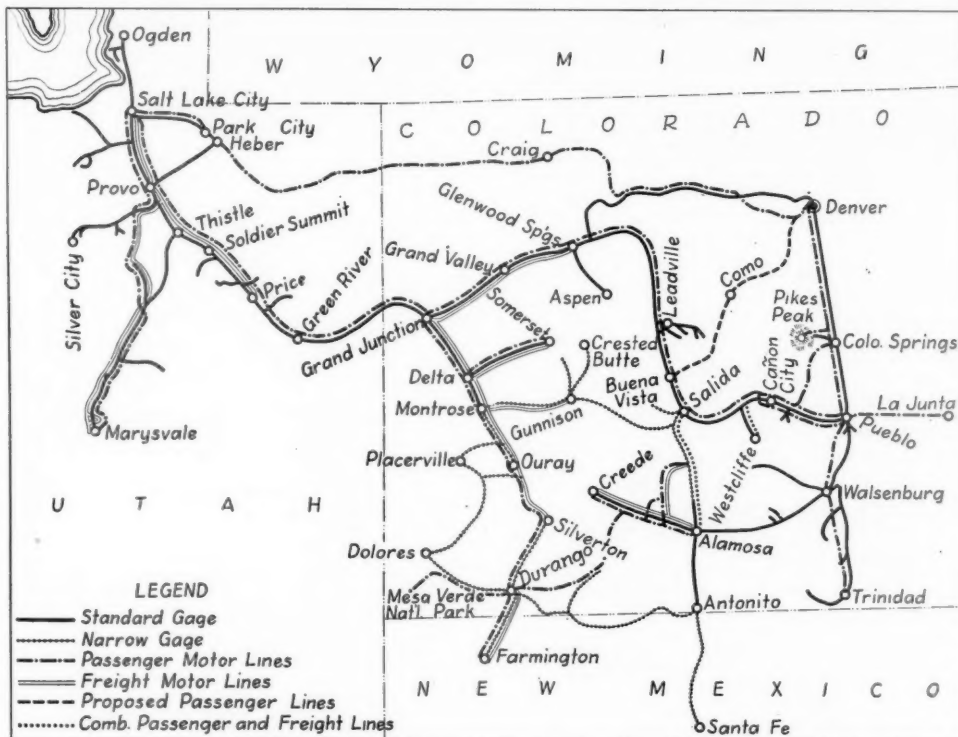
Much of the territory adjacent to the lines of the Denver & Rio Grande Western in Colorado and Utah is served by Rio Grande Motor Way, Inc. Its network of lines covers all of western Colorado. Operations in Utah are co-ordinated with train service from Salt Lake City to Marysville. On August 7 this company inaugurated daily bus service between Pueblo and

Salt Lake City, paralleling the railroad for the entire distance and operating over Tennessee Pass. This service is protected by new streamlined buses of 29 passenger capacity, and connection is made with other trans-continental bus lines at Pueblo, Provo, and Salt Lake City. In addition, another scenic service is to be inaugurated on September 1 or as soon as new equipment now on order is available, between Alamosa, Col., and Durango via Wolf Creek Pass.



passenger during the summer season may leave the Scenic Limited at Colorado Springs and enjoy a 67-mile motor trip to the Highway Suspension Bridge across the Gorge. Ample time is provided for sight-seeing, after which a descent is made via an incline railway, down the sheer wall of the canon to the Hanging Bridge below, where the passenger again boards the same train. Eastbound, the procedure is reversed, the passenger leaving the Scenic Limited at the Hanging Bridge and going via motor to Colorado Springs. Those who are not railroad passengers may avail themselves of the round trip from Colorado Springs to the top of the Gorge.

Rio Grande Motor Way, in conjunction with the Denver & Rio Grande Western, also provides a delightful motor trip across the western slope of Colorado from the Grand Junction, Delta, Montrose, Ouray and Durango stations of the railroad, to Mesa Verde National Park, over the Chief Ouray highway, into the heart of the high mountains, including Red Mountain, 11,025 ft. in elevation. Different, but no less attractive, is Molas Pass, 10,800 ft. in elevation, between Silverton and



The Rio Grande Motor Way, Inc., in which the Denver & Rio Grande Western holds an 80 per cent interest, began operations on the western slope of Colorado between Grand Junction and Montrose in June, 1926. The operation was extended to the San Luis Valley in April, 1927, and to Utah in April, 1929. Attractive sightseeing service in the Colorado Springs region was instituted in May, 1931.

Foremost in interest for the traveling public is the Rio Grande Motor Way's unique sight-seeing service between Colorado Springs and the Royal Gorge, and the service from Grand Junction to Mesa Verde National Park via Durango, both operated during the summer season only. For those who desire to see the famous Hanging Bridge in the Royal Gorge and on the same trip look down into the Gorge from the highway suspension bridge across the gorge, the highest bridge of any kind in the world, the Rio Grande Motor Way presents an inviting tour in conjunction with the Scenic Limited train of the D. & R. G. W. The westbound

Durango. The Mesa Verde Park Company, a subsidiary of the Rio Grande Motor Way, Inc., provides excellent accommodations for the sight-seer. Spruce Tree Lodge, operated by this company, is situated in the shadow of the prehistoric ruins of the park.



While the tour into the park is operated only during the summer season, regular year-round passenger and mail service is provided between Grand Junction and Durango. The passenger service between Delta and Somerset, Durango and Farmington, New Mexico is co-ordinated with this line. Freight service is maintained to all of these points. Freight trucks operate from Grand Junction to Glenwood Springs and from Montrose to Gunnison. A combination freight and passenger bus operates from Gunnison to Crested Butte.

Passenger and mail service is rendered between Malta and Leadville, replacing steam service the schedules being co-ordinated with the Rio Grande's Scenic Limited. Motor freight and passenger service is maintained between Texas Creek and Westcliffe. This operation replaces mixed steam service, except during the seasonal heavy shipping of live stock and vegetables.

An important Rio Grande Motor Way operation is that which serves the San Luis Valley, Colorado's 4,600,000 acre mountain garden. Passenger and mail service is provided from Alamosa to Salida via Monte Vista and Saguache; and from Alamosa to Creede. Service between these points replaces regular passenger steam service from Alamosa to Creede, and mixed steam service from Alamosa to Salida.

The route from Alamosa to Salida, straight through the heart of the San Luis Valley, high, fertile and productive agricultural section of Colorado, provides unique scenic attractions. Fields of grain, irrigated by water from artesian wells furnish an unusual agricultural spectacle. The famous sand dunes are in constant view, presenting an odd but captivating approach to the beautiful Sangre De Cristo range. Poncha Pass, 8,945 ft. in elevation, is more heavily forested and carries more vegetation than its towering neighbors.

Rio Grande Motor Way, Inc., also provides both freight and passenger service from Salt Lake City to Marysville, Utah, co-ordinated with but not replacing regular steam service. A motor freight line operates between Salt Lake City and Price, Utah. Another Rio Grande Motor Way line, on which service probably will be inaugurated during the summer of 1936, runs from Alamosa to Durango via Wolf Creek pass to provide the speediest and most convenient service between Durango and Denver. Schedules of the motor buses will be co-ordinated with the passenger train schedules from Alamosa to Denver, giving a convenient overnight Pullman service. This line will also serve Pagosa Springs terminal on an abandoned branch line.

Excellent equipment is used on all Rio Grande Motor Way operations. In some cases combination passenger and freight buses are utilized, meeting the demand for either class of service. The lines of the Rio Grande Motor Way, Inc., cover 1,189 miles, and 1,040,000 vehicle miles were operated in 1934, with 57 vehicles.

Denver-Salt Lake-Pacific Stages, Inc.

The Denver-Salt Lake-Pacific Stages, Inc., inaugurated service on May 31, 1935, with a through bus line between Denver and Salt Lake City. New streamline coaches are operated over U. S. 40 between the Colorado and Utah capitals, 537 miles, the shortest route between these cities. This line provides another inspiring scenic trip. U. S. 40 reaches the crest of the Continental Divide at Berthoud Pass, 11,309 ft. in elevation. Down the Pacific slope the road parallels the Colorado river, which in its upper reaches is one of the West's most famous trout streams. Going over Rabbit Ear pass, 9,680 ft. high, the highway crosses from the Upper Valley of the Colorado river to the Yampa River valley, another famous section of the Colorado Rockies. This

route combines fast schedules and outstanding scenic attractions.

The Denver-Colorado Springs-Pueblo Motor Way, Inc., the Missouri Pacific Transportation Company and the Burlington Transportation Company are joint owners of the Denver-Salt Lake-Pacific Stages, Inc.

Rio Grande Transport

The Rio Grande Transport is the pick-up and store-door delivery agency service through which the Denver and Rio Grande Western provides Colorado shippers with expedited service for l.c.l. freight at greatly reduced rates. Inaugurated in November, 1931, this service was at first confined to business moving to and from Denver, Colorado Springs and Pueblo, but has gradually been expanded to include Grand Junction, Trinidad, Walsenburg, Leadville and Glenwood Springs, important wholesale centers on the Rio Grande system. In Colorado, store-door delivery is maintained at all stations where reliable local delivery service is available. It has contributed to restoring l.c.l. traffic which had been lost to motor competitors. Classification restrictions and bothersome package requirements have either been eliminated or modified, and the reduced rates assure economy. One rate applies regardless of the nature of the shipment, except for certain bulky freight.

Santa Fe Begins Truck Operation

(Continued from page 253)

in delivery and flexibility of movement, station-to-station truck operation was decided upon, and two such truck routes were established.

The territory served lies almost entirely within the San Francisco-Sacramento jobbing area. Freight for this territory is handled from San Francisco and the Bay Cities to Fresno on a fast merchandise train over the main line of the Santa Fe. This train connects at Stockton, Cal., with a merchandise train operated from Sacramento via the Sacramento Northern, and the merchandise from the two lines is ready for station-to-station distribution by truck from the Fresno freighthouse between 5:30 and 6:30 a. m. The trucks also handle such other merchandise as may have arrived from Southern California and eastern shipping points.

The Truck Routes

One truck handles all merchandise between Fresno and Cutler, 45 miles, and intermediate stations, depositing and picking up the freight on the freighthouse platforms, since store-door service is not yet provided, although application therefor is pending. In this manner, early morning delivery is provided at all stations between Fresno and Cutler.

The second truck is operated from Fresno to Porterville. It makes no stops between Fresno and Visalia, a distance of approximately 45 miles. In fact, it uses a different and less-traveled road than the other truck, in order to effect speedier delivery at points further distant. This second truck distributes freight at stations from Visalia to Porterville, inclusive, collecting freight from Porterville to Visalia on the return trip and again running non-stop from Visalia back to Fresno. This truck makes a round trip of 180 miles daily. The drivers take the short run one day and the long one the next, in order to distribute the work equally between them.

The principal tonnage is, of course, from Fresno to

the branch line points. There is, however, a considerable movement in the opposite direction, which is increased, during the fruit season, by express shipments of fruit brought in by the trucks to Fresno, where connection is made with a passenger train to San Francisco in the early afternoon, the express shipments gathered in the producing territory in the afternoon thus reaching San Francisco the same night.

Supervision

The Santa Fe Transportation Company is under the supervision of the assistant to the general manager at Los Angeles, and of the division superintendent on the ground. A unique feature of the operation is that the truck drivers get their orders from the train dispatchers, who also prepare a daily truck-performance record, showing arrival and departure times of the trucks at the various stations, the elapsed time of the runs and the pounds of merchandise handled.

Apart from the fact that the speed and flexibility of the service have attracted considerable traffic back to the rails, this trucking of merchandise in branch line territory has effected a saving of \$3,000 to \$5,000 per month in train operation, the saving being rather less in the fruit shipping season because of the necessity of operating numerous trains for handling the fruit.

All-Year Transport to Yosemite

WITH a continuous record of 36 years of providing transportation to Yosemite National Park, the Yosemite Park & Curry Company ranks as the oldest of the national park transportation companies. Beginning in 1899, when there were but three employees, and when getting supplies meant a two weeks' trip by



El Capitan Dominates the Entrance to the Valley

mule train, the company now has more than 1,000 employees and provides all manner of transportation facilities, as well as operating hotels, camps, garages and stores.

Until comparatively recently, this operation was confined entirely to the summer season. Since the building of an all-year highway from Merced, Cal., to the park, however, Yosemite has become an important winter

sports resort. Evidence of its popularity is to be found in the fact that all reservations for this year's Christmas party are already taken. Bus service is now maintained



Yosemite Valley from the New All-Year Highway

daily throughout the year between Merced and the park, connections being made at Merced with Southern Pacific and Atchison, Topeka & Santa Fe trains and Pacific Greyhound buses. Construction is now under way on a similar all-year highway between Fresno, Cal., and the park, on which the transportation company also plans to establish all-year daily bus service. The major construction project involved in building this road, a 4,200-ft. tunnel, has already been completed. The Mariposa grove of big trees is situated only a short distance from this main road, and it, too, is being made available for all-year visits, despite the heavy snows of winter at its high altitude.

During the summer season, however, transportation activities are materially expanded. Extra services are put on to Merced, and numerous tours are operated from the new \$1,000,000 Ahwahnee hotel in the valley to the numerous points of interest in the park. During the season, also, the famous Tioga Pass detour is operated. Rail passengers leave the S. P. trains at Truckee, travel by bus along Lake Tahoe, and, after a tour through the high Sierras and Yosemite, board trains again at either Merced or Fresno to continue their journey. This detour may be added to any transcontinental ticket routed via S. P. Buses are also operated to connect with the through sleeping car service operated in summer to El Portal, 15 miles from the valley, via the S. P. and Yosemite Valley Railway.

The company also supplies bicycle and horse transportation, and handles all freight and other supplies moving into the valley.

A total of 100 units of passenger automotive equipment is owned by the Yosemite Transportation Company, which includes 27 buses, Whites, Studebakers and A. C. F.'s. Practically all of these are equipped with roll-away tops for scenic tours. The freight units consist of 15 pieces of equipment, ranging from 10-ton trucks on down. A modern garage is maintained in the valley to service this equipment. The company also operates a public garage for private automobiles entering the valley.

Odds and Ends . . .

Champion Train-Caller

Jack Barrowcliffe, representing the Rock Island Lines, was judged the winner in a train-calling contest held at State and Madison streets in Chicago, on June 12, 1935, during Railroad Week.

Wabash Cares for Grave

A grave on the right of way of the Wabash at Switzler, Mo., has been cared for by the company for many years. There are several versions of why the grave is on the right of way and all of them are agreed that it is the burial of a victim of the 1873 smallpox epidemic.

Most Northerly Bridge

Edwin Swergal of New York advises that the White Pass & Yukon bridge spanning Dead Horse gulch is not the most northerly railway bridge as suggested. He states that, while this bridge is 60 deg. north, the Kuskulana gorge bridge of the Copper River & Northwestern in Alaska is 61 deg. 30 min. As a matter of fact, we were both wrong, for the Tanana River bridge on the Alaska Railway at Nenana is 64 deg. 30 min. north.

Lucky Sevens

Alvin D. Goldman, St. Louis, went into the Frisco city ticket office to purchase a ticket, St. Louis to Ft. Worth. The ticket was sold for April 7—lower 7 in car 7 and ticket No. 777, train 7. Here you have seven 7's! There are seven letters in the word St. Louis and seven in the word Ft. Worth, which makes a few more, and if you want to look further, Mr. Goldman's name bears seven letters.

Royal Enthusiast

It seems that the world is to have another railroading king, to join King Boris of Bulgaria, whose railroading exploits have been mentioned frequently in these columns. Ananda Mahidol, age 11, recently proclaimed king of Siam, was asked if he was glad to have been made king.

"No," the lad replied, "I'd much rather play at railroading. Look, I've a complete toy set of locomotives, cars, stations and signals."

Unusual Conscience Letter

One of the most unusual conscience letters was received recently by a Chicago & North Western superintendent from a man in Omaha. It read:

"At different times, while peddling candy and fruit, I entered your station waiting rooms and took rolls of toilet paper instead of buying them. I took four or five of them, but I was converted a year ago and want to make my back life straight, so let me know how much I should pay for these, as well as forgive me for stealing toilet paper."

Tunnel Record

With 17 tunnels in 11 miles through the Carriso gorge, the San Diego & Arizona probably holds the tunnel record for the distance. These tunnels are in the mountainside, 900 ft. above the bottom of the gorge, and, in the location of the line, it was necessary to let the surveying parties down the mountainside by ropes. A peculiar feature of these tunnels, however, is that, even in the longest one, 2,597 ft., there is a complete lack of smoke and fumes. The constant suction through the canyon provides a natural air-conditioning system.

Men in White

Coal is proverbially black, yet the first Great Western of England rule book stated that enginemen were to wear white duck jackets and trousers, clean ones being provided every Monday morning. Some of the old rules made by the G. W. R. and

its associated companies make highly amusing reading today. One of the oddest came into force with the opening of the Taff Vale line in 1840. It stated: "It is urgently requested that every person, whether on or off duty, shall conduct himself in a steady, sober and creditable manner and that on Sunday or other holy days when he is not required on duty he will attend a place of worship, as it will be the means of promotion when vacancies occur." Passengers, too, were well-supervised, as this gem shows: "The company's officers and servants are not to allow any person to stand in any of the carriages or wagons, but compel them to sit upon seats or floors." The instruction went on to say that passengers who refused to obey were to be handed over to the company's police forthwith.

Traffic Solicitors

When did traffic solicitation as a specialized branch of railroading begin in America? The Illinois Central recently discovered a letter among its ancient files indicating that the first traffic solicitor was employed on that railroad 80 years ago. The letter, dated Chicago, September 27, 1855, was written by William H. Osborn, president of the Illinois Central, to the executive committee of that railroad in New York. Said Mr. Osborn: "One of the aldermen will be appointed in the Chicago community to travel up and down the line to encourage business. You may think me quixotic, but in this Mr. Joy and myself entirely concur. You have lost \$30,000 per month for two months past for want of attention. An omnibus driver looks around for passengers and I do not know why it is not the business of a railroad superintendent to look up freight."

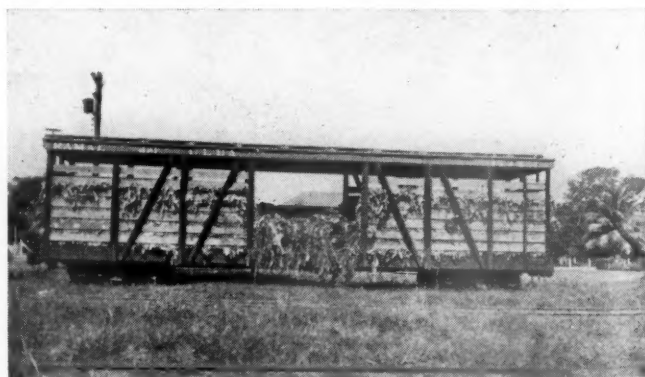
"Certainly Cow-Catchers Catch Cows," Says Willard

The Baltimore Evening Sun recently ran this item: "The Evening Sun editorial writer grows lyrical over the presence of a cow-catcher on the new engine of the Baltimore & Ohio's Abraham Lincoln. Well, we have been familiar with railroading all our lives and have made a special study of cow-catchers. And if we were a movie critic we would offer a blue ribbon with palms to any person who could cite one instance in the whole history of railroading in which a cow-catcher actually caught a cow."

Daniel Willard, president of the Baltimore & Ohio, and a former engineman, took exception to the item. When a reporter from the journal called upon him, he cited numerous instances out of his own experiences and so thoroughly convinced the reporter that not only the Sun, but many other newspapers throughout the country published his proof that the locomotive pilot is there for a very good purpose.

Bananas

In contrast with the careful refrigeration necessary in transporting bananas in this country, the accompanying illustration,



supplied by R. E. White, section foreman, Grand Trunk Western, is interesting. It shows the method of transport from the plantation to the ships in Honduras.



MAXIMUM POWER

applied at the "POWER POINTS"

DETERMINES TON-MILE COSTS

Modern locomotives have double the horsepower per axle compared with locomotives ten years old or over. » » »

Doubling the power at the power points doubles the net ton-miles per mile of track per day. » » » It spreads all operating costs over greater ton-mile output with a corresponding operating economy.

LIMA LOCOMOTIVE WORKS, INCORPORATED
LIMA **OHIO**



NEWS

Transport Bills Shelved As Solons Plan Holiday

Sec. 4 repeal and water carrier bills sidetracked in haste to adjourn Congress

As we go to press, while Congress is working at top speed in an effort to adjourn by the end of the week, the indications are that the bill for the regulation of water transportation by the Interstate Commerce Commission, S. 1632, and the Pettengill bill to repeal the long-and-short-haul clause of the interstate commerce act, H.R. 3263, will not be acted upon but will go over to the next session. The waterway bill had been favorably reported by the Senate Committee on interstate commerce and at one time was the unfinished business of the Senate but was laid aside. The Pettengill bill also had been reported from the House committee on interstate and foreign commerce and several efforts have been made to obtain from the rules committee a resolution providing for its consideration. Both bills are among those desired by the railroads and the waterway bill is one of those on Co-ordinator Eastman's program which had also been recommended by the President.

Up to Wednesday night Congress had enacted three of the bills on the Eastman program, the bus-truck bill, the railroad reorganization bill, and the bill to include "ports" in the anti-discrimination provisions of Section 3 of the interstate commerce act, which has been signed by the President. It had also passed the resolution extending the co-ordinator's office for another year. The bus-truck bill was the only one of those specifically advocated by the railroads to pass, while the pension bill, passed this week, was one of those they had vigorously opposed and which did not have the support of Co-ordinator Eastman. The railroad labor organizations were successful as to their pension bill, the bus-truck bill, and the resolution extending the co-ordinator's term, which they had pressed because it continued the restrictions in the law against reductions in railroad employment. They have been unsuccessful so far as to their extensive program of bills to increase employment, such as the six-hour day bill, the full-crew, train-limit, hours of service, and inspection bills, which failed to get beyond the stage of hearings before Senate sub-committees.

The Senate on August 16 passed the bill, S. 33 to create the United States Travel Commission, composed of the Secretary of State and the Secretary of Commerce, to "assemble, prepare, display and distribute

such informative materials concerning places of interest, means of transportation, and hotel facilities, and such other data as it deems advisable and advantageous for the purpose of encouraging travel to and within the borders of the United States (including Alaska, Hawaii, Puerto Rico, and the Virgin Islands) by citizens of foreign countries."

The Senate committee had also made a favorable report on the McCarran bill, S. 3420, providing for regulation of airplane transportation by the Interstate Commerce Commission.

Monument to B. & O. in Washington

The Senate on August 16 passed a joint resolution directing the architect of the Capitol to select a suitable site for a monument to indicate the historical significance of the first entrance of a steam railroad into the city of Washington and to grant permission to the officers and employees of the Baltimore & Ohio to erect an appropriate monument on such site as a gift to the people of the United States and to hold an appropriate ceremony in commemoration of the one hundredth anniversary of such entrance as "one of the most important events in the history of the country."

R. F. C. Plans for Equipment Loans

A plan under which the Reconstruction Finance Corporation may help to finance streamline passenger trains and other railroad equipment through loans to the manufacturers who would lease the equipment to the railroads has been outlined by Chairman Jones of the R. F. C. as one now under consideration and one which the corporation would be glad to extend if sufficient interest is shown in it.

Mr. Jones said the plan had been under discussion with the Edward G. Budd Manufacturing Company, manufacturer of the "Zephyr" type trains, and that he had agreed to make loans up to 80 per cent of the cost of the equipment, taking a mortgage on the equipment and a lien on the rental payments made by the railroad. Under this plan the railroads leasing such equipment would have no initial financing in connection with the equipment but would lease it on a basis under which it would ultimately become their property.

Lumber from Pacific Coast at Lower Rates

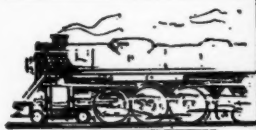
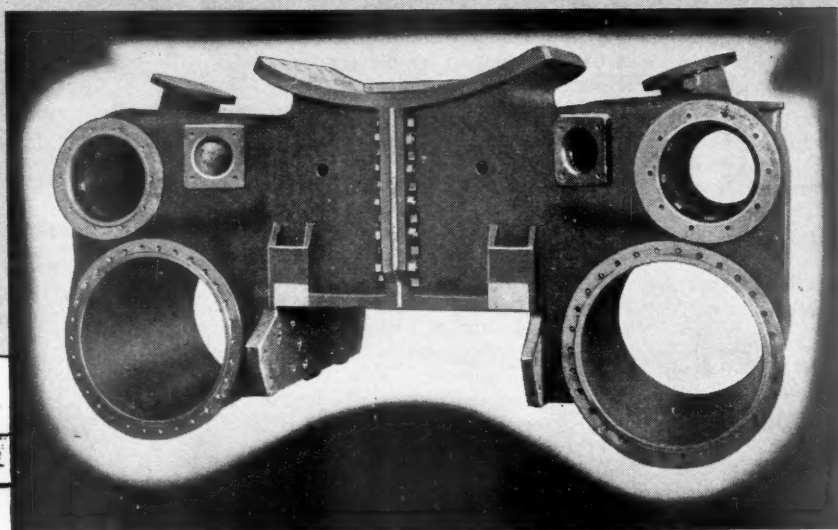
I. C. C. permits reduction which railways believe will yield increasing traffic

An experimental reduction in rates on lumber in carloads from Pacific coast regions to destinations in Official Classification territory east of the Illinois-Indiana state line, proposed by the railroads to become effective on June 10 in an effort to meet water competition by way of the Panama canal, was found justified in a decision by the Interstate Commerce Commission made public on August 19 accompanied by an order vacating the suspension of the rates to January 10. The rates had been suspended on protest of numerous lumber manufacturers, principally in the South, Arizona, New Mexico, Wisconsin, Michigan, New England and Trunk Line territories, and of southern and southwestern carriers, as well as various other interests. Rates ranging from 79. to 90 cents will be reduced to 72 cents, subject to carload minimum weights ranging from 50,000 to 60,000 pounds.

The report points out that prior to 1920 west coast lumber moved to market largely by rail but that because of the large intercoastal trade through the Panama canal which has developed since that time the proportions of rail and water shipments have been practically reversed. Pacific coast lumber manufacturers have established storage and distribution yards on the Atlantic seaboard, there has been a considerable movement by barge up the Mississippi river and its tributaries, and there has been an expansion of truck deliveries of lumber shipped from the west coast sawmills to ports and distribution yards on the Atlantic coast and connecting waterways. It was estimated on the record that the volume of tonnage moving all-rail would be increased by 450,000 feet, or approximately 16,666 carloads if the proposed rates became effective and that the rates would yield ton-mile earnings ranging from 4.17 to 7.91 mills for distances ranging from 1,821 to 3,450 miles.

"Although there is nothing definite as to the exact amount of the revenues which it is hoped to recover," the majority report said, "the record justifies the conclusion that lumber shippers will use the all-rail lines to a greater extent than at present if the reduced rates are established, and that a substantial increase in net revenue to respondents will result. We have previously found that the rates proposed will not result in undue prejudice to other pro-

DO YOUR LOCOMOTIVE
CYLINDERS *Loaf*
90% OF THE TIME
WHEN THEY ARE WORKING?



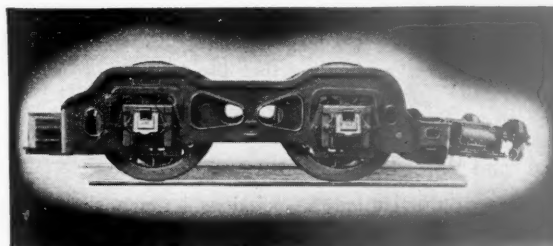
They do, unless the locomotive is equipped with The Locomotive Booster.

A capacity train—all the non-Booster locomotive can start and take over the ruling grade—is not a capacity train, for the rest of the run.

Utilizing the added power of the Booster to get the train started and over the tough spots changes all this. Train loading is determined by what the locomotive can haul over the road. The Booster permits a full capacity train the full length of the run. It

spreads operating costs over more ton miles.

Because it utilizes idle weight and spare steam The Locomotive Booster is one of the greatest economy factors available. It makes everything else more productive.



All replacement parts furnished by Franklin Railway Supply Company are identical as to materials, design, clearances and workmanship with the parts they replace. They guarantee the same unfailing reliability of service.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK

CHICAGO

MONTREAL

ducers of lumber. Accordingly, the net results to the rail carriers concerned being a revenue increase, we could not find in the proposed rate situation any changes in established rate structures which will be harmful to the public interest, having in mind our responsibility for railroad earnings in general. The respondents . . . are entitled, as a matter of right, to make the experiment unless upon this record we can say that their action or its probable results will violate some provision of the act." Commissioner McManamy dissented and Chairman Tate and Commissioner Mahaffie did not participate in the disposition of the case.

Central Railway Club

The Central Railway Club of Buffalo will hold its next meeting at the Statler Hotel, Buffalo, on Thursday evening, September 12. This will be the annual Ladies' Night.

Air-Conditioned Cars on the Southern

Pullman cars and dining cars are now air-conditioned on practically all of the most important trains on the Southern Railway System—36 trains—and the company takes a whole page in the Official Guide to tell about them. A footnote says that this air-conditioned service is also operated between other points in the South, not noted in the list.

I. C. C. to Investigate Arkansas Intrastate Rates

The Interstate Commerce Commission, on petition of the railroads, has ordered an investigation as to the refusal of the Corporation Commission of Arkansas to authorize application on intrastate traffic in Arkansas, emergency increases on bituminous coal, coke, sand, gravel or kindred commodities, cottonseed cake, meal, and hulls, corresponding to those authorized for interstate traffic.

Injunction Refused in Koppers Spotting Case

Despite the fact that two other courts have enjoined the Interstate Commerce Commission from enforcing its order suspending allowances to firms for car spotting services performed by them, a three-judge federal court in St. Paul refused a similar injunction, on August 17, to the Koppers Gas & Coke Company. The judges in this case denied the interlocutory decree, without final action, holding that the full record in the case had not been presented before the court.

Railroad Veterans to Meet

The officers of the United Associations of Railroad Veterans are to hold their annual convention at Hotel Sinton, Cincinnati, Ohio, on Saturday and Sunday, October 5 and 6. There will be a business meeting at 10:30 a. m., on Saturday, and the rest of the time will be used for sight-seeing and excursions, including a lunch at Mt. Airy Forest, served free by the ladies of the Baltimore & Ohio Auxiliary. Information can be had from M. W. Jones, secretary, Baltimore & Ohio Building, Baltimore, Md.

I. C. C. to Add to Staff For Motor Regulation

500 to 600 to be hired to keep tabs on buses, trucks—Fund asked \$1,325,000

An additional appropriation of \$1,325,000 for the Interstate Commerce Commission for the fiscal year 1936 for its expenses in connection with the administration of the motor carrier act, including the employment of a director of its Bureau of Motor Carriers at a salary of \$10,000 a year, was recommended to Congress on August 15 in a supplemental estimate of appropriation sent to the House appropriations committee by President Roosevelt on August 15. It is estimated that it will be necessary to add five or six hundred employees to the commission's staff for this purpose. Commissioners Eastman and McManamy, and J. L. Rogers, who has been appointed director of the bureau, testified in support of the proposal before the committee on August 16.

Under the plan of organization proposed, the commission will have a central staff at Washington and a field force having headquarters at several transportation centers. The Washington staff of the bureau will be made up of sections dealing with (1) certificates, and surety bonds, (2) traffic matters, including rates and tariffs, (3) accounts, statistics, and research, (4) formal and informal cases, (5) safety of operation and equipment, and (6) enforcement. It is the hope that there will be the closest co-operation between these sections and other departments and sections of the commission to the end that the entire jurisdiction of the commission may be administered in a harmonious and effective manner. It is planned at present that the district offices shall be located at from 15 to 20 important centers and each will be in charge of a district director. There will be attached to each district office a joint board agent, a rate and tariff agent, an accountant, and a number of supervisors. The primary functions of this field force will be to co-operate, to the greatest extent possible, with those subject to the law, and the state and municipal authorities, in bringing about a uniform understanding of the requirements and in seeing that they are obeyed.

Many inquiries have been received by the commission asking for interpretations of the act and inquiring as to when forms to be used in applying for certificates of convenience and necessity may be obtained but some time will be required before the personnel necessary for proper consideration of the questions involved can be assembled. It is understood that questions pertaining to the safety of operation and equipment will be given primary consideration.

A national committee on rates and tariffs of the American Trucking Associations, Inc., which met in Washington last week to consider what principle should be used to guide members in fixing their rates, has adopted a resolution, which has been submitted to state rate committees for further consideration, recommending that the

trucking industry develop its rates "on a basis of reasonable truck operating costs, plus a reasonable profit, and applied under a truck classification of commodities", and that "any truck tariffs and classifications patterned after those of rails would be difficult of substantiation."

In the report of the passage of the bus-truck bill published in the issue of August 10 the future date to which the Interstate Commerce Commission may postpone the effectiveness of parts of the act was erroneously stated as January 1. Before the bill was finally passed this date was amended to postpone it to April 1. Announcement will be made later by the commission as to what, if any, portions of the act will be deferred.

Intrastate Fare Orders Modified

The Interstate Commerce Commission, on petitions filed by the various groups of railroads, has issued orders modifying its previous orders relating to intrastate passenger fares in the states of Illinois, Minnesota, Alabama, North Carolina, North Dakota, Georgia, Ohio, Montana, Louisiana, and Wisconsin; this in order to enable the railroads to continue their experiments with reduced passenger fares for another six months, from October 1 to March 31, 1936.

Rivers and Harbors Bill

The House of Representatives on August 19 and the Senate on August 20 agreed to the conference report on the rivers and harbors bill, including many items inserted in the Senate after the bill had been passed by the House, authorizing projects the estimated cost of which is \$614,000,000. This amount includes many projects carried on with funds provided by the Public Works Administration without previous specific authorization by Congress.

Northwestern to Operate Flambeau Through September

The Flambeau, a fast Friday afternoon daylight train that was introduced by the Chicago & North Western this summer as an experiment in passenger service between Chicago and Milwaukee and the North Woods vacation region of Wisconsin, will remain in service throughout September instead of being taken off after Labor Day. Patronage on this train which leaves Chicago at 1 o'clock every Friday, has been so heavy that it has been operated in two sections for the last six weeks.

Minor Mechanical Meetings

Not all of the minor mechanical department associations will hold meetings in Chicago during September, as announced earlier in the year. According to the latest information available, the Traveling Engineers' Association and the International Railway General Foremen's Association will meet on September 16 and 17 at the Hotel Sherman, Chicago. It is planned to hold meetings of the Master Boiler Makers' Association and the International Railway Fuel Association on September 18 and 19. While some of these meetings will be held simultaneously and all will be at the same hotel, individual meeting rooms will be provided. At the

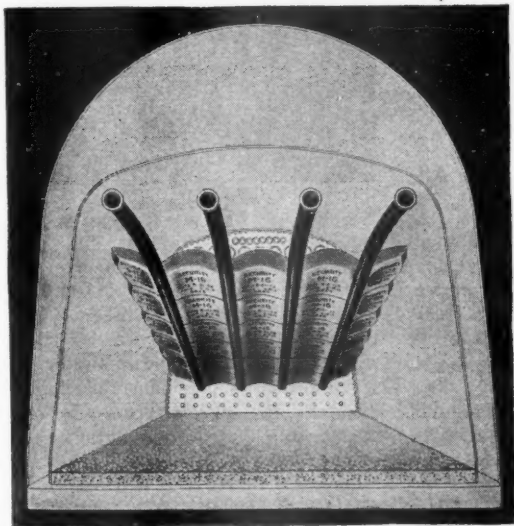


Here Is **EXPERIENCE** *That Is* **NOWHERE ELSE AVAILABLE**

For many years American Arch Company engineers have served the American railroads as counsel on combustion problems, have developed designs to meet unusual conditions, have systematized brick supply at needed points to facilitate maintenance, and have aided in securing the best possible service from Security Arches under all conditions of operation.

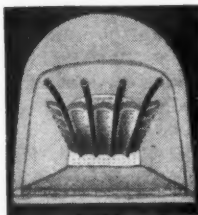
American Arch Company combustion engineers have met and solved practically every locomotive combustion problem; American Arch Company ceramic engineers have studied and developed Security Arch Brick for maximum service life. This experience is always at the service of the railroads.

This combined knowledge and experience is the reason why Security Brick Arches give greater service and greater savings than they did when conditions were less severe.



*There's More to
SECURITY ARCHES
Than Just Brick*

**HARBISON-WALKER
REFRACTORIES CO.**
Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**
*Locomotive Combustion
Specialists* * * *

Fuel Association meeting, a total of eight committee reports will be presented and speakers will include prominent representatives of the Federal Co-ordinator, the National Coal Association and railway mechanical departments. No exhibition of railway equipment or supplies is planned in connection with these meetings, which will be strictly business sessions for the purpose of electing officers, receiving and discussing reports, and such other business of the respective associations as may be found necessary.

R. C. C. to Distribute Another 1 Per Cent

The Railroad Credit Corporation, on August 31, will make its twentieth liquidating distribution to participating carriers. This distribution will amount to 1 per cent of the fund contributed in accordance with the terms of the marshalling and distributing plan, 1931, and will amount to \$735,879, of which \$379,884 will be in cash and \$355,995 in credits on obligations due the corporation. With this distribution, the total amount returned by the corporation to participating carriers will be \$25,755,974, or 35 per cent.

Compromise Reached on New Tax Rates

Conferees of the House and Senate on President Roosevelt's "soak-the-rich" tax bill reached a compromise on August 20 on the rates of taxation which had been passed in different form by the two houses. For the corporation income tax the compromise agreement provided for rates ranging from 12½ per cent on net incomes up to \$2,000 to 15 per cent on net incomes in excess of \$40,000. For the excess profits tax the rates range from 6 to 12 per cent. The capital stock tax was increased to \$1.40 per \$1,000 and there is a provision for exemption of only 90 per cent of inter-corporate dividends.

Southern Trains Faster

The Southern announces that, beginning with August 25, train No. 37, fast train from New York to New Orleans, leaving New York over the Pennsylvania, will start at 2:30 p. m. instead of 9:50 p. m., and will arrive at New Orleans at 10 p. m. the second day, instead of 8:05 a. m. the third day. The corresponding northbound train No. 38 will start at 10:45 p. m., one hour later than at present, and arrive in New York at substantially the same time as hitherto. Other schedules to be shortened are the Piedmont Limited, No. 33, 1 hr. 20 min.; the Memphis Special, No. 25, which will leave New York at 12:35 a. m. to be quickened 2 hr. 30 min., and No. 41, which will leave New York at 8:05 p. m. instead of 6:45 p. m.

Unlimited Comforts on Los Angeles Limited

The Union Pacific announces that the Los Angeles Limited—fast train Chicago to Los Angeles, starting at 9:30 p. m.—now has a coach (air-conditioned, of course) assigned exclusively to women; and it has a smoking lounge. On this train also, coach passengers are served

with meals in dining cars as low as 25 cents for breakfast, 30 cents for luncheon and 35 cents for dinner.

Pillows are furnished free for over-night travel in coaches. Drinking cups to be paid for have been discontinued and free dispensers are provided on all coaches.

Between Omaha and Los Angeles, there is stewardess service on this train. This service was inaugurated from Omaha on August 21, and from Los Angeles on August 23. The stewardesses are registered nurses and are in constant attendance. They are at the service of the guests on these trains without charge, and with their hospital experience can be of peculiar help to mothers accompanied by small children.

Package Cars On Time

During the first half of this year 97.85 per cent of the 218,596 package cars originating at Chicago reached their destinations on time, thereby setting a new on-time record for L. C. L. freight according to the Chicago Association of Commerce. During the second quarter of the year no car destined to Canada was more than a day late, while in the same period only eight of the 1,574 fast freight cars booked to points in California were more than a day behind time in reaching their destinations. The performance comparison for the first six months of 1934 and 1935 is given in the following tabulation:

Month	Cars Reported	On-Time Cars	Per Cent
January, 1934	38,781	37,897	97.72
January, 1935	36,444	35,162	96.49
February, 1934	34,531	33,127	95.93
February, 1935	33,199	32,298	97.29
March, 1934	40,272	39,219	97.38
March, 1935	36,991	36,272	98.06
April, 1934	38,030	37,290	98.04
April, 1935	38,515	37,873	98.35
May, 1934	39,455	38,706	98.10
May, 1935	38,115	37,558	98.54
June, 1934	38,824	38,135	98.26
June, 1935	35,332	34,742	98.33

Improvements and Concessions All Around

In addition to a number of announcements in this issue of the *Railway Age*, concerning improved passenger service, readers will be interested in certain items from the New York Central, the Norfolk & Western and the Pennsylvania. The New York Central extends over Labor Day (Monday, September 2) its regular weekend round-trip tickets, sold at one-third below standard rates; tickets good going until noon of Monday and good returning until midnight Tuesday.

The southbound Memphis Special, of the Norfolk & Western, leaving New York over the Pennsylvania at 9:50 p. m., will start 2 hr. 50 min. later and reach Memphis at 7:20 a. m., substantially the same as heretofore. The New York, Chattanooga & New Orleans Limited, of the same line, will leave New York at 8:05 p. m., or 1 hr. 20 min. later than heretofore; will reach Chattanooga the same as at present, New Orleans the same as at present, and Birmingham 40 min. earlier. The companion northbound trains No. 26 and 42 will not be changed.

On the Pennsylvania, the Spirit of St. Louis, eastbound, starting from St. Louis at noon, will arrive in New York one hour

earlier than heretofore; westbound this train will be quickened 20 min.; the Liberty Limited, eastbound, will make 40 min. better time than at present, and the Golden Arrow, eastbound, the Cleveland, eastbound, and the Buckeye, eastbound from Cleveland will also have their schedules accelerated.

M. M. Caskie Appointed to I. C. C.

President Roosevelt on August 16 sent to the Senate the nomination of Marion M. Caskie, until recently southern regional traffic assistant to Co-ordinator Eastman, as a member of the Interstate Commerce Commission, to succeed Patrick J. Farrell, whose term expired on December 31.

Mr. Caskie, whose appointment was recommended by Mr. Eastman, was born in Virginia in 1890. He was educated at the Fort Union Military Academy. From 1906 to 1910 he was in the service of the Southern Railway. From 1910 to 1917 he was engaged in the practice of law in connection with commerce matters. From 1917 to 1929 he was general manager of the traffic bureau of the Montgomery



Underwood & Underwood

Marion M. Caskie

(Ala.) Chamber of Commerce and also traffic manager of the Alabama Farm Bureau Federation and other associations. From 1920 to 1930 he was executive secretary of the Southern Traffic League, serving also as president and chairman of its board for several terms. He was also during this time a regional vice-president of the National Industrial Traffic League. From 1930 to 1931 he was assistant to the vice-president of the Reynolds Metal Company and assistant to the president of the Stokely Brothers Company, in charge of transportation matters. In 1931 he became general manager for the state of Alabama of its ocean and rail terminal at Mobile and general manager of the Terminal Railway of the Alabama State Docks. In 1933 he was appointed regional traffic assistant to Mr. Eastman and resigned a few weeks ago to become connected with the Waterman steamship interests.

He has been a member of the railroad committee of the Chamber of Commerce of the United States and of the traffic committee of the Mississippi Valley Association. The Senate committee on inter-

Specialization



THE spectators are tense . . . the ball flashes over the net . . . there ensue terrific smashes, drives, varied with lobs and deceiving chops . . . all the strokes that are a part of masterful tennis are brought into play. Some shots seem almost impossible to return but a perfect stroke quickly returns the ball with a sizzling drive. Championship tennis has a background of years and years of practice — learning from the "ground up"; the skilled player knows what to do and has the ability to do it accurately . . . the result of specialization.

Many of the qualities that make for successful tennis also are to be found in the manufacture and REmanufacture of superheater units. Twenty-five years have taught us that the best way to recondition your unserviceable superheater units is to re-build them by the same process we use to manufacture new units. This process requires die-forging and other specially developed

machinery. These machines are operated by skilled workmen expert in their operation and with a profound consciousness of the terrific conditions under which the superheater units operate. An attempt to patch-repair superheater units is similar to a novice trying to compete in a championship tennis tournament.

Using the Elesco unit REmanufactur-

ing service — the result of years of specialization — safeguards your railroad against train failures from worn or patched superheater units. REmanufactured superheater units — like new units — run from shopping to shopping without attention.

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, Inc.

60 East 42nd Street
NEW YORK



Peoples Gas Building
CHICAGO

A-1011

Canada: The Superheater Company, Limited, Montreal

Superheaters - Feed Water Heaters - Exhaust Steam Injectors - Superheater Pyrometers - American Throttles

state commerce promptly reported favorably on the nomination and it was confirmed by the Senate on August 20.

Construction

BALTIMORE & OHIO.—Bids were opened August 19, by the War Department, United States Engineer Office, Pittsburgh, Pa., for the relocation of the Baltimore & Ohio on about 12 miles between Grafton, W. Va., and Philippi. This work is necessary in connection with the project of the Tygart river reservoir located near Grafton. The Guthrie, Marsch, Walker Company, Chicago, submitted the lowest bid; they offered to do the entire work for \$2,935,217.

CHICAGO, BURLINGTON & QUINCY.—In connection with the rehabilitation of its lines that were damaged by floods late in May, this company has awarded a contract to J. B. Bertrand, Denver, Colo., for the grading of two miles of relocated line in the vicinity of Poe, Nebr.

SEABOARD AIR LINE.—The receivers have applied to the Interstate Commerce Commission for a certificate authorizing the construction of a 10-mile branch or spur line in Highlands county, Fla.

Equipment and Supplies

FREIGHT CARS

THE CAMBRIA & INDIANA has received bids for making body repairs to from 250 to 1000 hopper cars of 50 tons' capacity.

PASSENGER CARS

THE SEABOARD AIR LINE has ordered two streamlined baggage and mail, oil electric, 660-hp. rail motor cars, from the Electro-Motive Corporation, and the St. Louis Car Company, the latter company to build the car bodies.

SIGNALING

THE ELECTRO-MOTIVE CORPORATION has ordered from the General Railway Signal Company automatic train-control equipment to be used on a demonstration locomotive; also similar equipment for a second locomotive.

IRON AND STEEL

THE MISSOURI PACIFIC has ordered 210 tons of structural steel for a bridge at Gasconade, Mo., from the Virginia Bridge & Iron Co.

THE STATEN ISLAND RAPID TRANSIT RAILWAY COMPANY, a subsidiary of the

Baltimore & Ohio, has ordered from the American Bridge Company 750 tons of steel for grade crossing elimination work at Elm Park and Mariners' Harbor, Staten Island, N. Y.

AIR CONDITIONING

THE MISSOURI PACIFIC has been authorized by the federal district court to install air conditioning apparatus in 8 passenger cars.

MISCELLANEOUS

THE NEW YORK CENTRAL has placed an order with Geo. P. Nichols & Bros., Inc., Chicago, for a 300-ton capacity transfer table for its locomotive shop at West Albany, N. Y. This will replace a table furnished by the same company which has been in service since 1905.

Supply Trade

Avery & Saul Co., South Boston, Mass., has been appointed distributors of seamless steel and Toncan iron boiler tubes for the **Globe Steel Tubes Company**, Milwaukee, Wis.

The Taylor-Wharton Iron & Steel Company, High Bridge, N. J., will hereafter operate directly and in its own name the business of its wholly-owned subsidiary, the **William Wharton, Jr. & Company, Inc.**, Easton, Pa.

A special meeting of stockholders of the **Republic Steel Corporation** to act upon acquiring the assets of the Corrigan, McKinney Steel Company and other steps involved in the planned merger was adjourned, on Aug. 15, to Sept. 16. All necessary steps to carry out the merger are expected to be completed by that time.

Herbert J. Watt, since 1928 manager of sales, railway materials, of the Jones & Laughlin Steel Corp., Pittsburgh, Pa., has been appointed district sales manager at New York to succeed the late Robert M. Kilgore. Mr. Watt has been with the company in various capacities since December 1, 1925.

The board of directors of the **Inland Steel Company** has approved a resolution calling a special meeting of stockholders for September 20 to vote upon the proposed merger of that company with **Joseph T. Ryerson & Son, Inc.** A meeting of the stockholders of Joseph T. Ryerson & Son is scheduled for August 30, for the same purpose.

William H. Heckman has become associated, as a sales representative, with the **T-Z Railway Equipment Company, Inc.**, and the associated **Morris B. Brewster Company, Inc.**, with headquarters at Chicago. Mr. Heckman was formerly connected as vice-president with the Viloco Railway Equipment Company and the Okadee Company, associated companies, following several years in various

capacities in the mechanical department of the Chicago, Burlington & Quincy.

L. R. Gurley, who has joined the Chicago advertising staff of the **Simmons-Boardman Publishing Company**, was graduated from the University of Pittsburgh in 1920 and from the special apprenticeship course of the Pennsylvania. He later served as a motive power inspector and in the office of the superintendent of motive power of that road at Pittsburgh, Pa. In May, 1924, he joined the editorial staff of the *Railway Age* and the *Railway Mechanical Engineer*. In September, 1929, he resigned to become editor of a new publication called *Welding*, a magazine published by Steel Publications, Inc., Pittsburgh, Pa., and from September, 1933, till December, 1934, he was western manager of the Chicago territory for that company.

James R. Fitzpatrick has been appointed director of sales of the Technical Division of the Algoma Plywood & Veneer Co., with headquarters for sales, research and engineering service at 1616 Builders building, 228 North La Salle street, Chicago. The main plant and factory of the Algoma organization is located at Algoma, Wis., where it has been in business more than 60 years. It has recently installed what is said to be the world's largest hot-plate press, capable of producing waterproof, resin-glued panels in 12-ft. widths and in any length and



Walinger

James R. Fitzpatrick

thickness. Because of the size to which these panels can now be manufactured, they will be of special interest to builders of truck and bus bodies, street cars and railway coaches. The large sizes can be used for an entire top, side or end wall lining, and even for flooring. The Technical Division which Mr. Fitzpatrick will head is entirely separate from the Algoma general organization, although closely affiliated with the parent company, and will function as an individual organization. The purpose of this division is to open up new fields for the use of plywood in large panels and to promote uses for plywood combined with other materials, such as stainless steel and copper sheets and composition insulating boards.

Mr. Fitzpatrick is a graduate of the Rensselaer Polytechnic Institute and has

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GOING UP

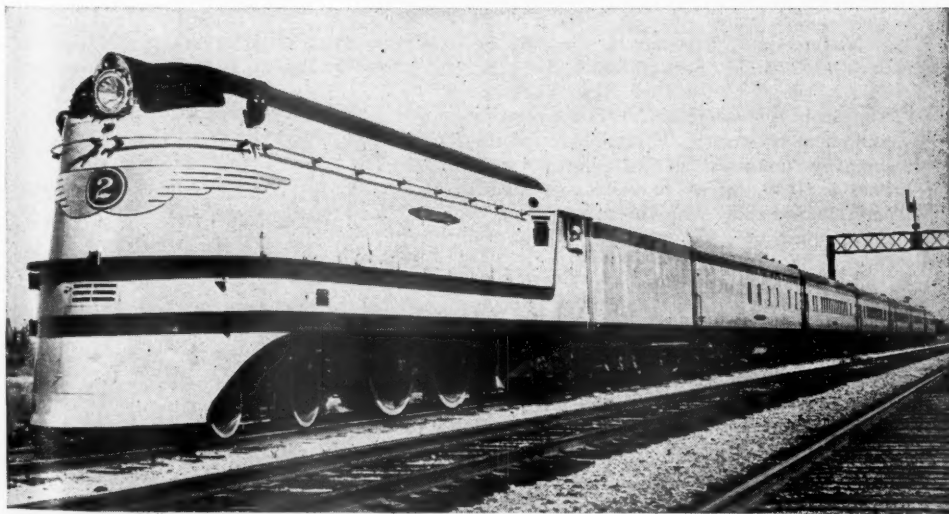
The "Hiawatha" in June carried a total of 16,564 paying passengers, an average of 552 a day.

Total paying passengers carried in July amounted to 20,237, an average of 653 a day.

The locomotive was built to handle six cars on this exacting schedule. On June 15th the train was increased to seven cars — an extra stop is being made at Red Wing — and on August 3rd an eighth car was added.

And the locomotive goes right on making the same original exacting schedule.

AMERICAN LOCOMOTIVE COMPANY



36 CHURCH STREET NEW YORK N.Y.

ALCO

served as a trustee of that institution. For 12 years he has been vice-president in charge of sales for the Haskell Manufacturing Corporation. He is a member of the Engineers' Club of New York, the Society of Automotive Engineers, the American Society of Civil Engineers, and is an associate member of the Society of Naval Architects and Marine Engineers. Recently he has served as a member of the executive committee of the American Transit Association and as chairman of the Manufacturers' Section of the Automobile Body-Builders Association.

OBITUARY

Edmund D. Brigham, Jr., vice-president of the North American Car Corporation, died suddenly of heart disease at Chicago on August 20.

W. L. Jefferies, Jr., sales representative at Richmond, Va., of the Union Spring & Manufacturing Company, New Kensington, Pa., died on August 8.

S. A. Witt, for many years western manager of the Detroit Lubricator Company at Chicago, and well known in the railway supply field, died on August 10, after about a year's illness.

B. Hyanes, service engineer at Baltimore, Md., of the New York Air Brake Company, died on August 9. Hr. Hyanes was born in August, 1867, at Churchville, N. Y., and started railroad work on the Northern Pacific in 1884, as locomotive fireman, later becoming engineman. In 1895 he went to the Chicago & Alton, leaving that service in 1902 to join the New York Air Brake Company.

Financial

BIRMINGHAM & SOUTHEASTERN.—Bonds.—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of \$50,000 of first mortgage 6 per cent bonds to be pledged as collateral security with the Reconstruction Finance Corporation.

CHESAPEAKE & OHIO.—Equipment Trust Certificates.—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability in respect of \$9,645,000 of 3 per cent equipment trust certificates.

ERIE.—Merger of Subsidiaries.—The Interstate Commerce Commission has authorized the New Jersey & New York and the New Jersey & New York Extension to merge their properties into the former company for ownership, management and operation.

FLORIDA EAST COAST.—Abandonment.—The Interstate Commerce Commission has authorized this company and its receivers to abandon a branch line extending from West Palm Beach to Palm Beach, 1.5 miles.

JAMESTOWN, WESTFIELD & NORTHWESTERN.—Abandonment and Acquisition.—The

Interstate Commerce Commission has authorized this company to abandon its line of railroad extending from Jamestown, N. Y., to Westfield, 32.5 miles, and the Erie has been authorized to acquire one mile of the main line extending northward from Jamestown, together with terminal tracks—in all totaling 4.1 miles of main line and 1.4 miles of siding. The Erie is to pay a total of \$360,000 in four annual installments of \$90,000 each for the properties to be acquired. The abandonment and acquisition order is, however, subject to the proviso that the entire line must be sold to any responsible parties offering to purchase it for continued operation within 60 days.

MISSOURI PACIFIC.—Reorganization Plan Opposed.—Holders of the first mortgage gold bonds, Series A, B, C and D, and non-cumulative income (secured) bonds, Series A of the New Orleans, Texas & Mexico are being notified by the protective committee headed by G. H. Walker that it intends to take steps to oppose the plan of reorganization of the Missouri Pacific System filed with the Interstate Commerce Commission. The opposition is to that part of the plan which affects the N. O. T. & M. bonds. A committee representing Mo. P. first and refunding bonds, headed by J. W. Stedman, vice-president of the Prudential Life Insurance Company, is likewise opposing the reorganization plan.

PENNSYLVANIA.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon 25 miles of branch lines and segments of branch lines in Centre, Clearfield, Clinton, Fayette, Jefferson, Somerset and Westmoreland counties, Pa.

PENNSYLVANIA.—Equipment Trust Certificates.—Salomon Bros. & Hutzler, Dick & Merle-Smith, Freeman & Co., R. W. Pressprich & Co., Stroud & Co., Inc., and R. L. Day & Co.—all of New York—on August 16 offered \$15,282,000 of 4 per cent equipment trust series E certificates of this company maturing in installments from 1936 to 1949, priced to yield less than 1 per cent for early maturities and rising to a maximum of 3.075 per cent.

PENNSYLVANIA.—Equipment Trust Certificates Sold at Premium.—The Reconstruction Finance Corporation has sold \$15,282,000 of this company's equipment trust certificates which it had purchased from the Public Works Administration at a premium of \$1,169,837. The bonds were awarded on competitive bids to a syndicate headed by Salomon Bros. & Hutzler at \$1076.55. The Brown-Harriman Company syndicate had bid \$1063.89 and Halsey, Stuart & Co. and associates had bid \$1059.37.

ST. LOUIS-SAN FRANCISCO.—Abandonment.—The Interstate Commerce Commission has authorized this company and its trustees to abandon a line extending from Wardell, Mo., to Yukon, 9 miles.

SOUTHERN PACIFIC.—Abandonment.—The Interstate Commerce Commission has authorized the Texas & New Orleans to abandon a part of a branch line about a mile in length at Ennis, Tex.

WICHITA FALLS & SOUTHERN.—R. F. C. Loan.—The Interstate Commerce Commission has authorized the extension for two years of the time of payment of a loan of \$375,000 made by the Reconstruction Finance Corporation to this company which matured August 18. The original loan was for \$400,000, of which \$25,000 has been paid.

Dividends Declared

Boston & Albany.—\$2.00, quarterly, payable September 30 to holders of record August 31.
Chesapeake & Ohio.—70c, quarterly, payable October 1 to holders of record September 6; Preferred, \$3.25, semi-annually, payable January 1 to holders of record December 6.

Average Prices of Stocks and of Bonds

	Aug. 20	Last week	Last year
Average price of 20 representative railway stocks..	36.17	37.08	35.54
Average price of 20 representative railway bonds..	74.27	74.71	73.62

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

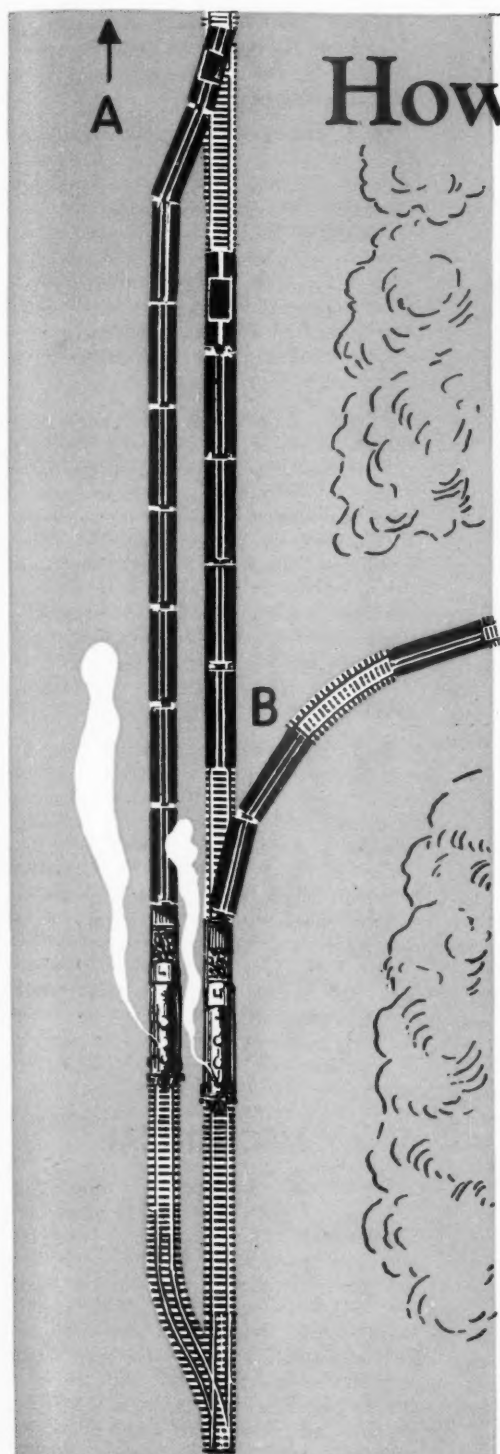
Robert Adams, assistant general auditor of the Southern Pacific, with headquarters at San Francisco, Cal., will retire on September 1, and will be succeeded by **H. C. McCleer**, auditor of miscellaneous accounts, with headquarters at San Francisco, who in turn will be succeeded by **J. A. Quinn**, special accountant and chief clerk. Mr. Adams entered railway service in 1881 as a messenger for the Wabash in Peoria, Ill. Later he was pro-



Robert Adams

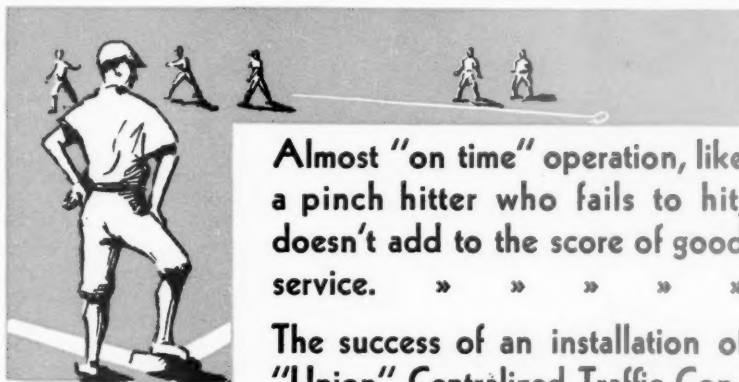
moted to clerk, which position he held with that road and the Toledo, Peoria & Western until 1887, when he was made clerk to the auditor of the latter line. From 1887 to 1894, he was clerk, waybill reviser and traveling auditor of the Toledo, Peoria & Western, on the latter date resigning to enter the employ of the St. Louis, Alton & Terre Haute as chief clerk in the auditor's office at St. Louis. In 1897 and 1898,

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Two freights left "A" ten minutes apart. The first had a car to be set out at "B" unknown to the dispatcher until it stopped at "B". Under C.T.C. the dispatcher simply lined up the second train for the siding and ran it around the first without stopping and with no delay to opposing train. * * *

How Many of Your Trains Are "LEFT ON BASE?"



Almost "on time" operation, like a pinch hitter who fails to hit, doesn't add to the score of good service. » » » » »

The success of an installation of "Union" Centralized Traffic Control is measured by the number of trains that reach destinations *on time*—not upon those that *almost* do. For example, on a single track line with automatic signals and train order operation, the actual incident pictured in the illustration would have been like the pinch hitter. Under C.T.C., however, all trains concerned reached their destination on scheduled time. » » » » »

The road, on which such instances are of daily occurrence, states: "The normal operation of the C.T.C. is so perfect that delays are avoided or saved daily, which could not have been avoided with the train order system." » » » » »

Why not let our engineers suggest how "Union" C.T.C. can serve. No obligation. » » »

CTC

1881

Union Switch & Signal Co.

1935

NEW YORK

MONTREAL

SWISSVALE, PA.

CHICAGO

ST. LOUIS

SAN FRANCISCO

he was traveling auditor for the Illinois Central and from 1898 to 1900 was auditor for the St. Louis, Peoria & Northern. On the latter date he became chief clerk in the auditing department of the Chicago & Alton. He held this position until 1902, when he entered the employ of the Southern Pacific at San Francisco as auditor of disbursements, in which capacity he continued until 1910, when he was made assistant auditor. In 1918, he was appointed assistant federal auditor, later serving as associate auditor and finally as assistant general auditor, the position from which he retires under the pension rules of the company.

Mr. McCleer entered the employ of the Southern Pacific in 1906 as a clerk in the chief train agent's office and after holding various positions in the accounting department until 1918 was made chief clerk to the auditor. In 1929 he was appointed auditor of miscellaneous accounts, which



H. C. McCleer

position he has held until his recent promotion.

TRAFFIC

A. M. McIntyre, general agent for the Minneapolis & St. Louis with headquarters at Chicago, has been transferred to Minneapolis, Minn., to succeed **J. C. Glenn**, deceased.

Samuel S. Bretz, general freight agent for the Central of New Jersey, with headquarters at New York, has retired because of ill health after 43 years of continuous service. **H. J. Nelson**, general freight agent at New York, has been appointed assistant freight traffic manager. **Don Y. Smith**, general freight agent at New York, has been appointed assistant freight traffic manager.

James V. Whalen, New England passenger agent for the New York, New Haven & Hartford, with headquarters at Boston, Mass., has been appointed general passenger agent in charge of solicitation, with the same headquarters. **Louis S. Pollitt**, chief clerk in the Boston office, has been appointed district passenger agent at Boston. **James A. Goode**, traveling passenger agent at New York, has been appointed district passenger agent at New Haven, Conn.

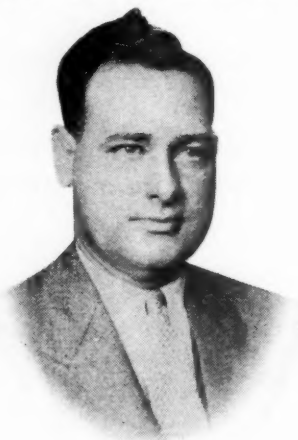
Thomas H. Irwin has been appointed general freight agent for the Central of



Thomas H. Irwin

New Jersey, with headquarters at New York, succeeding **Don Y. Smith**, promoted. Mr. Irwin entered railway service in May, 1902, as a messenger boy in the accounting department of the Central of New Jersey at Philadelphia, Pa. He served in various positions in the accounting department, including that of traveling auditor. In 1926 Mr. Irwin was promoted to the position of lighterage agent at New York, which position he held until his recent appointment.

A. L. Hocking, coal traffic representative of the Central of New Jersey, has been appointed coal freight agent, with headquarters at New York, succeeding **H. B. Walters**, deceased. Mr. Hocking entered railway service in September, 1917, as clerk for the Central of New Jersey at Wharton, N. J. In March, 1921, he was transferred to High Bridge, N. J., in the same capacity. He was promoted to chief clerk at Bronx terminal, N. Y., in August, 1922, and entered the traffic



A. L. Hocking

department as soliciting freight agent in March, 1925. Mr. Hocking was appointed coal traffic representative in June, 1934, the position he held until his recent appointment as coal freight agent.

OPERATING

Sidney W. Gibson, general manager of the Trans-Missouri department of the Railway Express Agency at Chicago, and **Harrison H. Hammon**, superintendent of terminal service in Chicago, have retired, effective August 1.

R. S. Hampshire, superintendent of the Western Texas division of the Railway Express Agency, with headquarters at San Antonio, Tex., has been appointed superintendent of the Northern Texas-Louisiana division, with headquarters at Dallas, Tex., succeeding **J. A. Hyde**, retired. **W. W. Grove**, general agent, has been appointed superintendent of the Western Texas division at San Antonio, succeeding Mr. Hampshire.

W. W. Argabrite, chief clerk to the general manager of the South Pacific department of the Railway Express Agency at Los Angeles, Calif., has been appointed superintendent of the Los Angeles division. **F. C. Rocky**, general agent at Denver, Colo., has been appointed superintendent of the Southern California-Arizona-New Mexico division. **W. J. MacGreevy**, superintendent of the Los Angeles division, has been appointed general manager of the Trans-Missouri department. The above appointments were effective July 1.

J. J. McDermott, superintendent Terminal division of the Railway Express Agency, New York City department, has been appointed superintendent of the Susquehanna division, with headquarters at Scranton, Pa., succeeding **D. W. Gibson**, retired. **E. P. Prendergast**, superintendent of the Commercial division, has been appointed superintendent Terminal division, New York City department, succeeding Mr. McDermott. **E. A. Chittenden**, traffic agent, with headquarters at Buffalo, N. Y., has been appointed superintendent of the Commercial division at New York, succeeding Mr. Prendergast.

MECHANICAL

Oscar N. Schoppert, general car foreman of the Western Maryland, with headquarters at Cumberland, Md., has been appointed master car builder, with headquarters at Hagerstown, Md. Mr. Schoppert was born on May 22, 1881, at Piedmont, W. Va., and was educated in the public schools of Piedmont. He entered railway service in April, 1901, with the Western Maryland as car repairman at Ridgeley, W. Va., and his entire service has been with this road. In December, 1912, he became clerk and in June, 1914, he was appointed chief clerk to master car builder at Hagerstown. He became traveling car inspector in April, 1921, and in January, 1923, was appointed assistant to master car builder. Mr. Schoppert was later appointed general car foreman at Cumberland, the position he held up to the time of his recent appointment.

OBITUARY

J. C. Glenn, general agent of the Minneapolis & St. Louis at Minneapolis, Minn., died in that city on August 9.